Clinical Case Registries

Technical Manual/Security Guide

Version 1.5

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Department of Veterans Affairs

Health System Design and Development

Provider Systems

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Introduction

Overview

This version of CCR introduces a single software package to support both the Hepatitis C Registry and the Human Immunodeficiency Virus (HIV) Registry (former Immunology Case Registry or ICR). Previously, these two registries were created and maintained through two separate software packages. The functional requirements for these registries were substantially the same, so this software has been designed to support both.

The software uses pre-defined selection rules that identify patients with possible Hepatitis C and/or HIV (such as a disease related ICD-9 code or a positive result on an antibody test) and adds them to the registry in a pending state. Pending patients are reviewed by the local registry coordinator and if the data confirm the diagnosis, the local registry coordinator confirms the patient in the registry.

Each night a background process transmits a set of predefined data via HL7 to the national CCR database at the Austin Automation Center (AAC), which is managed by the VHA Center for Quality Management in Public Health (CQMPH). Data from both registries is aggregated in the same message. If there is more new data than is allowed by the registry parameter for a single CCR HL7 batch message (currently, 5 megabytes), the software will send several messages during a single night. The CCR software creates a limited set of database elements to be stored locally in the VistA system, and focuses on assuring that the local listing is complete and accurate, that the desired data elements are extracted, and that data elements are appropriately transmitted to the national database.

Data from the registries is used for both clinical and administrative reporting on both a local and national level. Each facility can produce local reports (information related to patients seen in their system.). Reports from the national database are used to monitor clinical and administrative trends, including issues related to patient safety, quality of care and disease evolution across the national population of patients.

What's New in CCR v1.5

- This new version of CCR combines two separate registries under a single application interface. Previously, the Hepatitis C Registry and the Immunology Case Registry were created and maintained through two separate interfaces. The functional requirements for these registries were substantially the same, so they have been combined.
- The Immunology Case Registry (ICR) has been renamed to Human Immunodeficiency Virus (HIV) Registry.
- In addition to the **/NOCCOW** command line switch, which disables the CCOW functionality completely, the GUI supports the new **/CCOW=PatientOnly** switch that disables only the Single Sign-On/User Context functionality.
- Instead of activation/inactivation, patients are either confirmed in the registry or deleted from it.
- New reports have been added and existing reports have been enhanced.
- Report parameters can be saved by users and re-loaded later.
- The nightly task combines data from both registries into a single set of batch HL7 messages. However, it is still possible to create additional HL7 protocols and send the registry data to different locations.
- Application acknowledgement HL7 messages are no longer used.
- If more new data is available than defined by the registry parameters (currently, 5 megabytes), the nightly task will send more than one HL7 batch to the AAC during a single night.
- Historical data extraction can be performed either in manual mode (similar to the CCR v1.0) or in fully automatic mode. In the latter case, data is transmitted via regular HL7 messages instead of the host files.

Recommended Users

The Information Resource Management (IRM) staff is required for installation and support of the CCR v1.5.

Related Manuals

Clinical Case Registries Installation & Implementation Guide

Clinical Case Registries Release Notes

Clinical Case Registries User Manual

Screen Displays and Text Notes

The user's response is shown in this manual in **bold type**, but does not appear on the screen as bold. The bold part of the entry is the letter, or letters, that you must type so that the computer can identify the response. In most cases, you only have to enter the first few letters. This increases speed and accuracy.

Every response you type must be followed by pressing **Return** (or **Enter** for some keyboards). Whenever the Return or Enter key should be pressed, you will see the symbol **<RET>**. This symbol is not shown but is implied if there is bold input.

Within the roll and scroll part of the system, Help frames may be accessed from most prompts by entering one, two, or three question marks (**?**, **??**, **???**).

Within the examples of actual terminal dialogues, additional information about the dialogue may be shown. This information is enclosed in brackets, for example, *{type ward name here}*, and it does not appear on the screen.

Computer dialogue appears in `Courier` font.

The following boxed format highlights special details about the topic being addressed:

Note: This boxed format highlights special details about the current topic.

Software and Manual Retrieval

The CCR software files and documentation are available on the following Office of Information Field Offices (OIFOs) ANONYMOUS SOFTWARE directories:

OIFO	FTP Address	Directory
Albany	ftp.fo-albany.med.va.gov	[ANONYMOUS.SOFTWARE]
Hines	ftp.fo-hines.med.va.gov	[ANONYMOUS.SOFTWARE]
Salt Lake City	ftp.fo-slc.med.va.gov	[ANONYMOUS.SOFTWARE]

File Name	Contents	Retrieval Format	File Size
ROR1_5.KID	KIDS build.	ASCII	3,140 KB
ROR1_5GUI.ZIP	Zipped GUI distributive.	BINARY	7,171 KB
ROR1_5DOC.ZIP	Zipped DOC distributive. Includes both PDF and DOC formats: ► Installation Guide (ROR1_5IG) ► Release Notes (ROR1_5RN) ► Technical Manual (ROR1_5TM) ► User Manual (ROR1_5UM)	BINARY	4,280 KB

VistA Documentation on the Intranet

All of the clinical software manuals are available in the VistA Document Library (VDL). Access the VDL at http://www.va.gov/vdl/, then click the **Clinical Case Registries** link to locate and download the documentation.

For additional information about the CCR, access the CCR Home Page at the following address: http://vista.med.va.gov/ClinicalSpecialties/CCR/. Training links and information are also available at http://vaww.vistau.med.va.gov/vistau/ccr/ .

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Implementation and Maintenance

Maintenance

The Clinical Case Registries Maintenance menu [RORMNT MAIN] has the following six options that sites can use to customize and maintain their use of the software:

ACL	Re-index the ACL cross-reference
ELS	Edit Lab Search Criteria
ERP	Edit Registry Parameters
HDE	Historical Data Extraction...
PLF	Print Log Files
PP	Pending Patients...

Re-index the ACL cross-reference

The "ACL" cross-reference of the ROR REGISTRY PARAMETERS file (#798.1) should be rebuilt after changes in the allocation of the security keys associated with any registry. Usually, this is done by the nightly task (the Registry Update & Data Extraction [ROR TASK] option). However, if you want the changes to take effect immediately, you should rebuild this cross-reference manually:

```
   ACL    Re-index the ACL cross-reference
   ELS    Edit Lab Search Criteria
   ERP    Edit Registry Parameters
   HDE    Historical Data Extraction ...
   PLF    Print Log Files
   PP     Pending Patients ...

Select Clinical Case Registries Maintenance Option: ACL
Do you want to reindex the ACL cross-reference? NO// YES

Done.
```

Edit Lab Search Criteria

This option allows you to enter the Lab Search criteria used by the registry update process. The criteria are updated via CCR patches and should not be edited without approval from the Center for Quality Management in Public Health (CQM) and Enterprise VistA Support (EVS).

```
   ACL    Re-index the ACL cross-reference
   ELS    Edit Lab Search Criteria
   ERP    Edit Registry Parameters
   HDE    Historical Data Extraction ...
   PLF    Print Log Files
   PP     Pending Patients ...

Select Clinical Case Registries Maintenance Option: ELS  Edit Lab Search Criteria

Select ROR LAB SEARCH NAME: VA HIV
```

```
Select LOINC CODE: 33807
  Are you adding '33807' as a new LOINC CODE (the 35TH for this ROR LAB SEARCH)?
 No// Y  (Yes)
  INDICATOR: P  Positive Result
  INDICATED VALUE: <RET>
Select LOINC CODE: <RET>
STATUS: <RET>
```

Each criterion includes one or more triads that consist of LOINC CODE, INDICATOR, and optional INDICATED VALUE. The indicator defines the comparison operation applied to the Lab result. The Lab result is compared to the value of the INDICATED VALUE parameter. For example, if the internal value of this field is equal to 3 ("Greater Than") and the value of the INDICATED VALUE field is 5, then this indicator will be evaluated as True for all numeric Lab results values greater than 5.

The only exceptions are the "Use Reference Range" and "Positive Result" indicators; they ignore the value.

"Use Reference Range" indicator checks if the result value is outside of the reference range defined for the Lab test.

The "Positive Result" indicator selects a test result if the value

- is equal to "P"

or

- contains "POS", "DETEC" or "REA" and does not contain "NEG", "NO" or "IND".

For example, the "POSITIVE", "POS", "REACT", and "DETECTABLE" values will be picked up. At the same time, the "NON-REACT", "INDETERMINATE", and "NEG" values will be skipped.

Note: All string comparisons are case-insensitive.

The STATUS field allows users to temporarily inactivate the whole lab search criterion.

Edit Registry Parameters

This option allows you to review/edit the registry parameters. These values can alter the way the system works on a site-by-site basis.

```
   ACL   Re-index the ACL cross-reference
   ELS   Edit Lab Search Criteria
   ERP   Edit Registry Parameters
   HDE   Historical Data Extraction ...
   PLF   Print Log Files
   PP    Pending Patients ...

Select Clinical Case Registries Maintenance Option: ERP  Edit Registry Parameters

Select ROR REGISTRY PARAMETERS REGISTRY NAME: VA HEPC      Hepatitis C Registry
REGISTRY UPDATED UNTIL: DEC 18,2005// <RET>
DATA EXTRACTED UNTIL: DEC 18,2005// <RET>
EXTRACT PERIOD FOR NEW PATIENT: 7300// <RET>
ENABLE LOG: YES// <RET>
Select LOG EVENT: <RET>
REGISTRY STATUS: <RET>
Select NOTIFICATION: CCRUSER,TWO
  Are you adding 'CCRUSER,TWO' as a new NOTIFICATION (the 2ND for this ROR REGISTRY
PARAMETERS)? No// Y  (Yes)
Select NOTIFICATION: <RET>
LAG DAYS: 7// <RET>
ALERT FREQUENCY: 2/ <RET>/
ENABLE PROTOCOLS: YES// <RET>
MAXIMUM MESSAGE SIZE: 5// <RET>
```

This option is typically run during the implementation phase to enter Notifications and Log Event Types. All other parameters are set during the package installation and should not be edited without approval from EVS or package developers.

- The REGISTRY UPDATED UNTIL and DATA EXTRACTED UNTIL parameters are initialized during the package installation; they will be subsequently updated by the nightly task. These fields should only be edited in situations such as a system failure.
- The EXTRACT PERIOD FOR NEW PATIENT parameter defines the number of days subtracted from the date a new patient first selection rule was passed that the extract process uses when extracting data. The value of this parameter for national registries cannot be changed by the users.
- The ENABLE LOG field allows you to turn the CCR log on or off. The log stores messages generated by different CCR processes (mostly, by the nightly task).
- The LOG EVENT multiple allows the system to monitor the registry on various levels. If this field is left empty (default), all events except debug messages are recorded in the log file. If the multiple contains one or more records, only events specified by these records and error messages will be recorded. Possible event types are:
    1. Debug
    2. Information
    3. Data Quality
    4. Warning
    5. Database Error
    6. Error

  Debug messages are intended for registry troubleshooting. These messages are exclusions from the above rule; they are not logged if ENABLE LOG is set to "Yes" and the LOG EVENT multiple is empty. Their recording can only be explicitly enabled.

  Information messages can be used as formatting elements (headers, trailers, separators, etc.) and as a source of additional information that may be helpful in the troubleshooting process.

  Data Quality messages indicate possible issues with the data in the FileMan files, such as missing or invalid values, ambiguous data, etc.

  Database Error messages most of these error messages are generated by the FileMan DBS calls. Usually, these messages indicate serious problems with the database. Database errors are recorded regardless of content of the LOG EVENT multiple.

  Error messages indicate fatal problems during the execution. Usually, processing of the patient data (or even the registry as a whole) stops after these errors. Errors are recorded regardless of content of the LOG EVENT multiple.

  You may enter a new LOG EVENT, if you wish select the type of event and if you want to enable recording of these events. If the list is empty, recording of all events is enabled. Otherwise, only events from the list and error messages will be recorded.
- If you need to temporarily exclude the registry from the registry updates and data extractions, set the REGISTRY STATUS parameter to INACTIVE (1).
- Users referenced by the NOTIFICATION multiple receive VistA alerts about problems with the CCR software (such as data transmission problems).
- Value of the LAG DAYS parameter defines an overlap of the data searches during the registry updates and a data extraction delay during the regular data extractions. See the Technical Description of the field in the data dictionary for more information.
- Value of the ALERT FREQUENCY parameter determines how often e-mail notifications and VistA alerts are sent to the AAC and local staff in case of problems with the site's CCR software (data extraction problems, unsent HL7 messages, etc.). For example, if the nightly task runs every night and the ALERT FREQUENCY is 2, then alerts and notifications will be sent every other night.

- If the ENABLE PROTOCOLS parameter is set to "Yes" (default), event protocols will be used by the package to speed up the registry processing. The protocols create references to the patient events in the ROR PATIENT EVENTS file (#798.3). Only those patients that have new references will be processed by the next registry update.

  Note: If several registries are updated at the same time and at least one of them has this field set to "Yes", all these registries will be processed using event references.

- The MAXIMUM MESSAGE SIZE parameter defines the maximum size (in megabytes) of a batch HL7 message that can be sent to the AAC. If this field is empty or contains 0, the size is not limited.

  Note: You must co-ordinate your intentions with AAC support personnel if you are going to edit this field.

Historical Data Extraction

This option displays the Historical Data Extraction menu. See the Manual Historical Data Extraction section below for details.

```
   DS     Display Extraction Status
   ED     Edit ...
   ST     Start a Task
   TT     Stop a Task
   DL     Display Task Log

Select Historical Data Extraction Option:
```

Print Log Files

This option allows you to print the CCR log files. It provides a history of all events that have occurred within the provided time frame.

```
   ACL   Re-index the ACL cross-reference
   ELS   Edit Lab Search Criteria
   ERP   Edit Registry Parameters
   HDE   Historical Data Extraction ...
   PLF   Print Log Files
   PP    Pending Patients ...

Select Clinical Case Registries Maintenance Option: PLF  Print Log Files
  START WITH START DATE/TIME: // T-1  (FEB 08, 2006)
  GO TO START DATE/TIME: LAST// <RET>

DEVICE: HOME// <RET>

CLINICAL REGISTRIES LOG FILE(S)               FEB  9,2006  15:02    PAGE 1
DATE/TIME              TYPE            PATIENT NAME (DFN)
   MESSAGE
   ADDITIONAL INFO
------------------------------------------------------------------------------

           LOG DATE/TIME: FEB  8,2006  08:34

FEB  8,2006  08:34     Information
   ROR 1.5 PRE-INSTALL STARTED
   VA HEPC
   VA HIV

FEB  8,2006  08:34     Information
```

```
   Removing old selection rule references...

FEB  8,2006  08:34     Information
   The references have been removed.

FEB  8,2006  08:34     Information
   Clearing the ROR TASK file...

...
```

Note: Logs that are older than 31 days are automatically purged by the nightly task.

Pending Patients

When you select this option, you are offered the List of Pending Errors option. This option lists all patients whose data caused errors during the Registry Update process.

The option prints a report containing list of patients referenced by the ERROR multiples of the ROR PATIENT EVENTS file (#798.3). The list is sorted by the value of the COUNTER field. This field indicates how many times an error was recorded for the patient.

```
   ACL   Re-index the ACL cross-reference
   ELS   Edit Lab Search Criteria
   ERP   Edit Registry Parameters
   HDE   Historical Data Extraction ...
   PLF   Print Log Files
   PP    Pending Patients ...

Select Clinical Case Registries Maintenance Option: PP  Pending Patients

   LPE   List of Pending Errors

Select Pending Patients Option: LPE  List of Pending Errors

DEVICE: HOME// <RET>

LIST OF PENDING PATIENT ERRORS                FEB  9,2006  15:11    PAGE 1
PATIENT NAME                    DFN           REGISTRY
------------------------------------------------------------------------------


        COUNTER:  14

CCRPATIENT,ONE                  19937         VA HEPC
CCRPATIENT,TWO                  11866         VA HEPC

        COUNTER:  5

CCRPATIENT,THREE                10075623      VA HIV

...
```

This report can be used to find patients ignored by the registry update (until someone fixes the error(s) and resets value of the COUNTER field to 1).

Manual Historical Data Extraction

Overview

If it is necessary to re-extract a large amount of registry data in the specified date range due to new data elements, problems in the data extraction code, etc., then the manual historical data extraction should be used.

The historical data extraction process runs independent of the nightly task. It gathers historical data for each registry patient and writes it to the host operating system files in HL7 format. Several menu options are provided to initiate and control the process.

Any data errors found will be reported on a log file, and the job will continue on to the next patient on the registry to get historical data. You can check the status of the run using the user interface. The user interface shows when the job is completed and indicates if any data errors were found.

After errors are fixed, the job can be re-run. This second run goes through all patients having errors during the first run and automatically creates an additional file. This process continues until the interface indicates that all patients are processed. After all patients have data extracted successfully , you can transmit all files created by this process to the national database using FTP or any other means.

Historical Data Extraction Menu

Manual historical data extraction menu options are accessible from the Historical Data Extraction [RORHDT MAIN] menu:

```
Select OPTION NAME: RORHDT MAIN

   DS     Display Extraction Status
   ED     Edit ...
   ST     Start a Task
   TT     Stop a Task
   DL     Display Task Log

Select Historical Data Extraction Option: ED

   CT     Create Extraction Tasks
   EE     Edit data extraction

Select Edit Option:
```

DS – Display Extraction Status

This option displays the status of a selected data extraction. The historical data extraction start and end dates, the output directory name, processed registries, and task table are displayed.

ED – Edit…

This option offers two more edit options when selected:

CT – Create Extraction Tasks

This option spreads historical data processing over several tasks in order to speed up the process.

EE – Edit Data Extraction

This option allows users to edit parameters of a manual historical data extraction in the ROR HISTORICAL DATA EXTRACTION file (#799.6).

ST – Start a Task

This option starts a data extraction task that was created with the Create Extraction Tasks option.

TT – Stop a Task

This option allows you to stop a running task and de-queue a scheduled task. The task can be restarted later. In that case, it will try to re-extract data that was not extracted during the previous runs due to errors. Then it will continue the extraction from the first unprocessed record from the group of patients defined for the task.

DL – Display Task Log

This option lets users see a log of any running/finished data extraction task. If any errors have been found, they will be logged here. Any errors should be fixed and then the task re-started.

Data Extraction Instructions

Follow the steps below to perform the historical data extraction:

1. **Create the output directory.**

   Historical data extraction tasks create files containing historical data for registry patients. The host file system directory for these files must be created and defined in the parameters of the historical data extraction before the extraction tasks are run.

   In VMS, create the directory as follows:

```
$ CREATE/DIR/PROT=(OWNER:RWD) VA2S$:[RORHDT]
$ SET SECUR /ACL=(IDENTIFIER={VistA},ACCESS=READ+WRITE) VA2$:[000000]RORHDT.DIR
```

   Replace the *{VistA}* in the SET command with the VMS username (or UIC) associated with the VistA Taskman processes.

   Note: See Appendix A for instructions on creating the output directory in a Windows environment.

2. **Define the name of the output directory in the data extraction parameters.**

   Use the Edit data extraction [RORHDT EDIT EXTRACTION] option to populate the historical data extraction parameters with the name of the output directory:

```
   CT    Create Extraction Tasks
   EE    Edit data extraction

Select Edit Option: EE  Edit data extraction

Select a Data Extraction: ROR-TEST

OUTPUT DIRECTORY: // VA2$:[RORHDT]
```

3. **Create the data extraction task(s).**

   Use the Create Extraction Tasks [RORHDT CREATE] option to define the data extraction tasks:

```
   CT    Create Extraction Tasks
   EE    Edit data extraction

Select Edit Option: CT  Create Extraction Tasks

Select a Data Extraction: ROR-TEST

Name:       ROR-TEST
Registries: VA HEPC
Date Range: JAN 01, 1980 -- JAN 25, 2006
Output Dir: VA2$:[RORHDT]
```

```
         No tasks have been defined

Number of unique patients:            3385
Maximum number of patients per batch: 750
Number of data extraction tasks:      5

Create the new task table? NO// YES
New task table has been created.
```

4. Start the data extraction task(s).

Use the Start a Task [RORHDT START] option to start the data extraction task(s). The user can select a task using a value from the "ID" column:

```
   DS     Display Extraction Status
   ED     Edit ...
   ST     Start a Task
   TT     Stop a Task
   DL     Display Task Log

Select Historical Data Extraction Option: ST  Start a Task

Select a Data Extraction: ROR-TEST

Name:       ROR-TEST
Registries: VA HEPC
Date Range: JAN 01, 1980 -- JAN 25, 2006
Output Dir: VA2$:[RORHDT]

  ID  File Name                       Task      Status

   1  ROR-605-01.HDT
   2  ROR-605-02.HDT
   3  ROR-605-03.HDT
   4  ROR-605-04.HDT
   5  ROR-605-05.HDT

Task ID:  (1-5): 1
Task #85179 has been scheduled.
```

It is not necessary to wait until the previous task finishes in order to schedule the next one. You can schedule several tasks at the same time. Make sure that the system has enough resources for this and there will be no negative impact on the response time during business hours.

5. Wait for the task(s) completion.

The person who schedules the data extraction tasks will receive VistA alerts when they are complete (one alert per task).

Meanwhile, you can use the Display Task Log [RORHDT LOG] option to display the data extraction status of a selected registry. The task log includes historical data extraction start and end dates, the output directory name, affected registries, and the task table.

The following information displays for each task in the table:

ID Internal Entry Number of the task (IEN).

File Name A unique name based on site name and sequential number of the task. This file will contain the extracted results when the task has run; it will reside in the designated output directory.

Task Task number assigned by Taskman to the data extraction task

Status Status of the data extraction task

The eight status values are:

Status	Meaning
Active: Pending	Task is scheduled but is not currently running
Active: Running	Task is currently running
Active: Stopping	Task was requested to stop but has not responded yet
Inactive: Finished	Task has finished successfully
Inactive: Available	Task was created without being scheduled or was edited without being rescheduled
Inactive: Interrupted	Task was stopped by a user
Inactive: Crashed	Task has stopped running due to a crash
Inactive: Errors	Task has completed but some patient data was not processed completely due to errors

In the example below, one of the tasks has the status of ' Inactive: Errors '.

```
   DS     Display Extraction Status
   ED     Edit ...
   ST     Start a Task
   TT     Stop a Task
   DL     Display task log

Select Historical Data Extraction Option: DS  Display Extraction Status

Select a Data Extraction: ROR-TEST

Name:       ROR-TEST
Registries: VA HEPC
Date Range: JAN 01, 1980 -- JAN 25, 2006
Output Dir: VA2$:[RORHDT]

  ID  File Name                        Task      Status

   1  ROR-605-01.HDT                   85179     Inactive: Errors
   2  ROR-605-02.HDT
   3  ROR-605-03.HDT
   4  ROR-605-04.HDT
   5  ROR-605-05.HDT

Enter RETURN to continue or '^' to exit:
```

If you need to stop a task (e.g. due to a slow system response), use the Stop a Task [RORHDT STOP] option. You will be prompted to select a data extraction, and then the task table and task selection prompt will display.

The system displays the "De-queue the task?" prompt (if the task is already running, the 'Stop the task?' prompt displays instead). If 'NO' is entered, no changes are made to the selected task. If 'YES' is selected, the task is de-queued (or stopped).

```
   DS     Display Extraction Status
   ED     Edit ...
   ST     Start a Task
   TT     Stop a Task
   DL     Display Task Log

Select Historical Data Extraction Option: TT  Stop a Task

Select a Data Extraction: ROR-TEST

Name:       ROR-TEST
Registries: VA HEPC
Date Range: JAN 01, 1980 -- JAN 25, 2006
Output Dir: VA2$:[RORHDT]

  ID  File Name                        Task      Status

   1  ROR-605-01.HDT                   85179     Inactive: Errors
   2  ROR-605-02.HDT                   85180     Active: Running
   3  ROR-605-03.HDT
   4  ROR-605-04.HDT
   5  ROR-605-05.HDT

Task ID:  (1-5): 2
Stop the task #85180? NO// YES
The task #85180 has been stopped/unscheduled.
The task #85180 has not responded to the stop request yet.
```

6. Examine the task log(s).

If one or more data extraction tasks with problems are identified at the previous step, use the Display Task Log [RORHDT LOG] menu option to examine the logs of those tasks. You are prompted to select a data extraction, and then the task table and task selection prompt displays.

```
   DS     Display Extraction Status
   ED     Edit ...
   ST     Start a Task
   TT     Stop a Task
   DL     Display Task Log

Select Historical Data Extraction Option: DL  Display Task Log

Select a Data Extraction: ROR-TEST

Name:       ROR-TEST
Registries: VA HEPC
Date Range: JAN 01, 1980 -- JAN 25, 2006
Output Dir: VA2$:[RORHDT]

  ID  File Name                        Task      Status

   1  ROR-605-01.HDT                   85179     Inactive: Errors
   2  ROR-605-02.HDT                   85180     Inactive: Interrupted
   3  ROR-605-03.HDT
   4  ROR-605-04.HDT
   5  ROR-605-05.HDT

Task ID:  (1-5): 1

DEVICE: HOME// <RET>
```

```
TASK LOG FILE                              JAN 27,2006  13:25    PAGE 1
DATE/TIME             TYPE           PATIENT (DFN)
   MESSAGE
   ADDITIONAL INFO
------------------------------------------------------------------------

JAN 27,2006  13:20     Information
   HISTORICAL DATA EXTRACTION STARTED
   VA ICR

JAN 27,2006  13:29     Database Error  CCRPATIENT,TEN (7145502)
   Cannot obtain results of the Lab tests
   Invalid patient identifier passed
   No patient found with requested identifier
   Location: LABRSLTS+16^RORUTL02

JAN 27,2006  13:44     Information
   HISTORICAL DATA EXTRACTION FINISHED
   Patients:     1020
   Errors:       1
   Time (sec):   9
   Patients/sec: 0.66
```

In addition to the warnings and error messages, a task log also shows the date and time that the task was started and when it finished, how many patients were processed, the amount of errors that were encountered, the time (in seconds) that the task took to complete, and the average processing rate (patients per second).

7. If there are errors, fix them and restart the tasks with errors.

After fixing the errors, restart the task(s) that had errors using the Start a Task [RORHDT START] option. This creates new files containing only the data for those patients who had errors during the previous run.

As shown in the example below, the rescheduling dialog is slightly different from that described in step 4:

```
   DS     Display Extraction Status
   ED     Edit ...
   ST     Start a Task
   TT     Stop a Task
   DL     Display Task Log

Select Historical Data Extraction Option: ST Start a Task

Select a Data Extraction: ROR-TEST

Name:       ROR-TEST
Registries: VA HEPC
Date Range: JAN 01, 1980 -- JAN 25, 2006
Output Dir: VA2$:[RORHDT]

  ID  File Name                        Task      Status

   1  ROR-605-01.HDT                   85179     Inactive: Errors
   2  ROR-605-02.HDT                   85180     Inactive: Interrupted
   3  ROR-605-03.HDT
   4  ROR-605-04.HDT
   5  ROR-605-05.HDT

Task ID:  (1-5): 1
Data will be written to the 'ROR-605-01-01.HDT' file.
Task #85182 has been scheduled.
```

If you decide to begin the historical data extraction process from scratch, first delete all historical data files from the output directory, then recreate the task table as shown below, and then return to step 4.

```
   CT    Create Extraction Tasks
   EE    Edit data extraction

Select Edit Option: CT  Create Extraction Tasks

Select a Data Extraction: ROR-TEST

Name:       ROR-TEST
Registries: VA HEPC
Date Range: JAN 01, 1980 -- JAN 25, 2006
Output Dir: VA2$:[RORHDT]

  ID  File Name                        Task      Status

   1  ROR-605-01-01.HDT                85179     Inactive: Errors
   2  ROR-605-02.HDT                   85180     Inactive: Interrupted
   3  ROR-605-03.HDT
   4  ROR-605-04.HDT
   5  ROR-605-05.HDT

Overwrite the existing task table? NO// YES

Number of unique patients:            3385
Maximum number of patients per batch: 750
Number of data extraction tasks:      5

Create the new task table? NO// YES
New task table has been created.
```

The only difference from the step 3 is the additional ' Overwrite the existing task table?' prompt. Answer 'YES' to that question.

Data Transmission Instructions

Background Information

You should transfer the historical data files to the national database via FTP. If the files were created in VMS, you can use the VMS FTP client. If you are using a Windows server, use either a command line or GUI client.

Note: Historical data files **must** be transmitted in binary mode.

Data Transmission Instruction

Follow the steps below to transmit the data using the VMS FTP (see the VMS documentation and/or online help for more details):

1. Obtain the IP address, user name, and password for the FTP account.
2. Enter the **FTP** command with the IP address as a parameter.
3. Wait for the "Name (…):" prompt and enter your user name.
4. Wait for the "Password:" prompt, and then enter your password (the characters of the password do not display on the screen).
5. Change the transfer mode to binary using the **SET TYPE IMAGE** command.
6. Send the historical data files (*.HDT) from the output directory using the **PUT** command:

FTP> **PUT** *{disk and directory name}****.HDT**

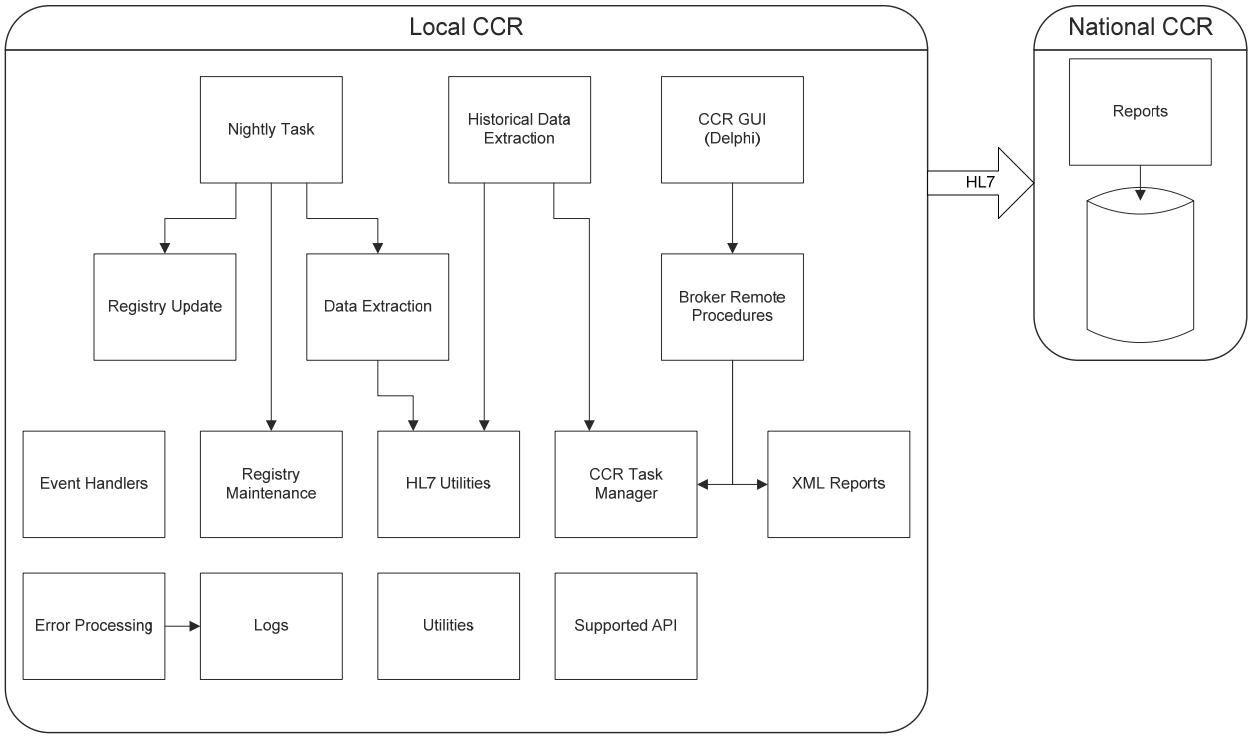
7. Wait until the transfer is complete, and then verify that all files have uploaded successfully.
8. Disconnect and exit the FTP client using the **EXIT** command.

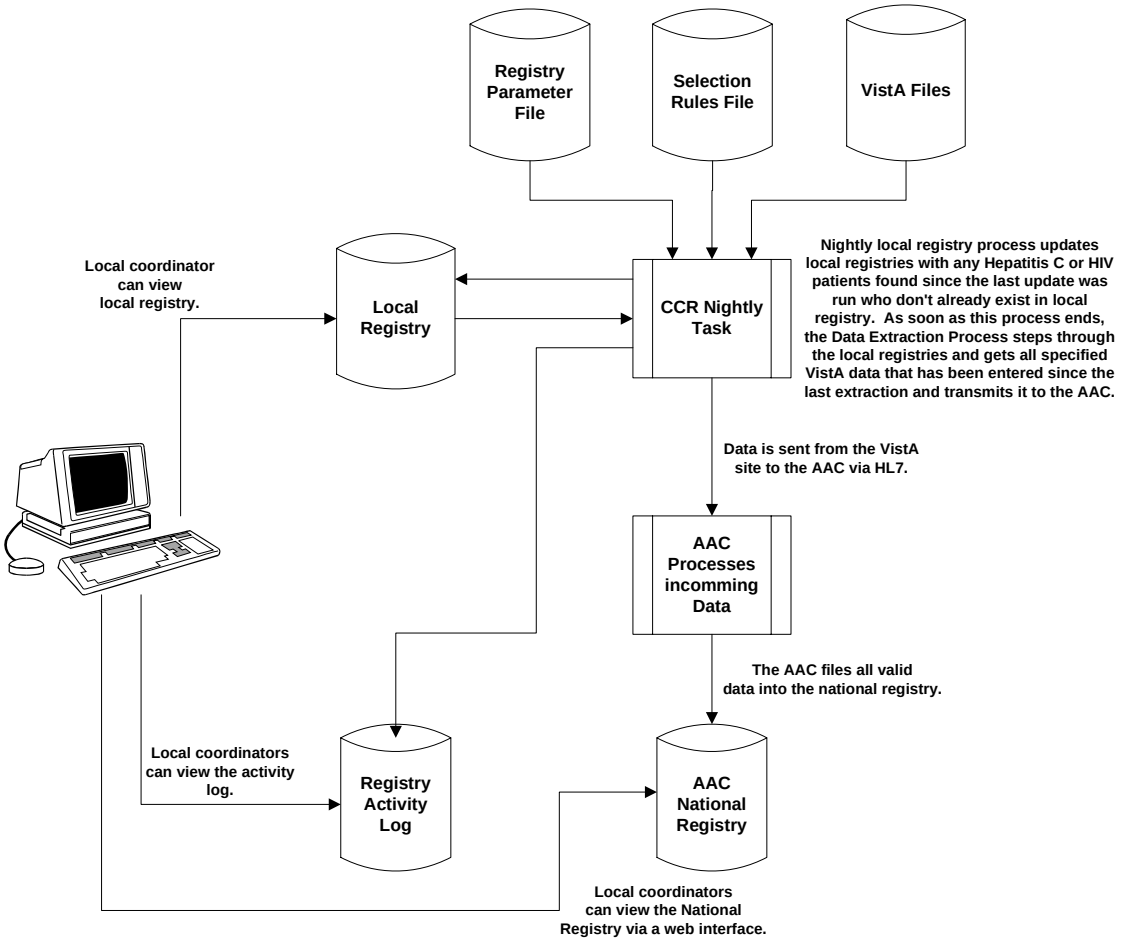
The screen capture below shows a typical VMS FTP session:

```
$ FTP 10.168.97.208
220 Palo Alto CQM0 Server
Connected to 10.168.97.208.
Name (10.168.97.208): stn499
331 Please specify the password.
Password:
230 Login successful.
FTP> SET TYPE IMAGE
200 Switching to Binary mode.
FTP> PUT VA2$:[RORHDT]*.HDT
200 PORT command successful. Consider using PASV.
150 Ok to send data.
226 File receive OK.
local: VA2$:[RORHDT]ROR-605-01.HDT;1  remote: ror-605-01.hdt
93003 bytes sent in 00:00:00.69 seconds (130.31 Kbytes/s)
200 PORT command successful. Consider using PASV.
150 Ok to send data.
226 File receive OK.
local: VA2$:[RORHDT]ROR-605-02.HDT;1  remote: ror-605-02.hdt
91391 bytes sent in 00:00:00.51 seconds (174.31 Kbytes/s)
FTP> EXIT
221 Goodbye.
```

Note: For information on using the Windows FTP client, see Appendix B.

CCR Structure and Process Overview




Registry Parameter File
Selection Rules File
VistA Files
Local coordinator can view local registry.
Local Registry
CCR Nightly Task
Nightly local registry process updates local registries with any Hepatitis C or HIV patients found since the last update was run who don't already exist in local registry. As soon as this process ends, the Data Extraction Process steps through the local registries and gets all specified VistA data that has been entered since the last extraction and transmits it to the AAC.
Data is sent from the VistA site to the AAC via HL7.
AAC Processes incomming Data
The AAC files all valid data into the national registry.
Local coordinators can view the activity log.
Registry Activity Log
AAC National Registry
Local coordinators can view the National Registry via a web interface.

CCR Files

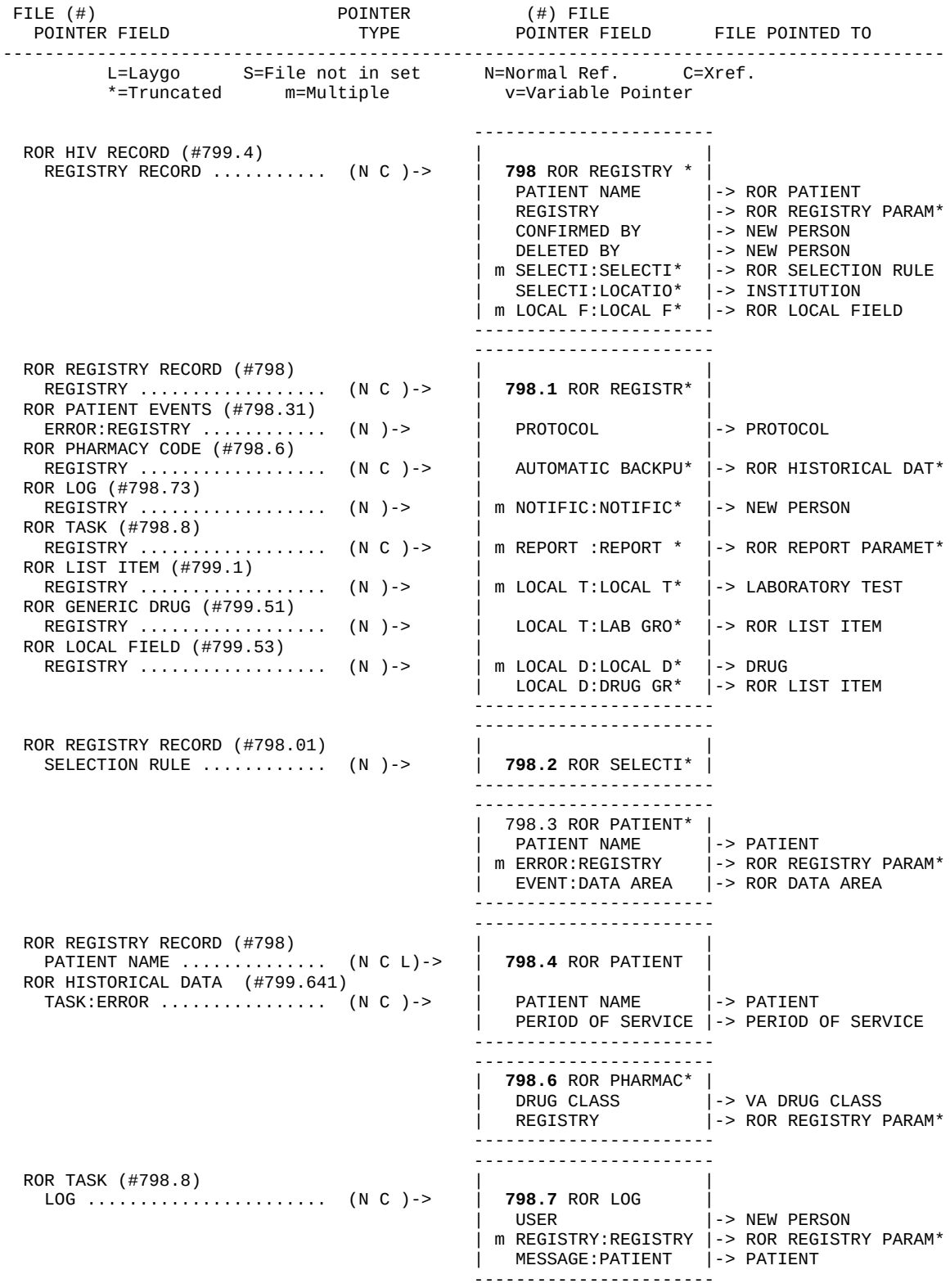
File List

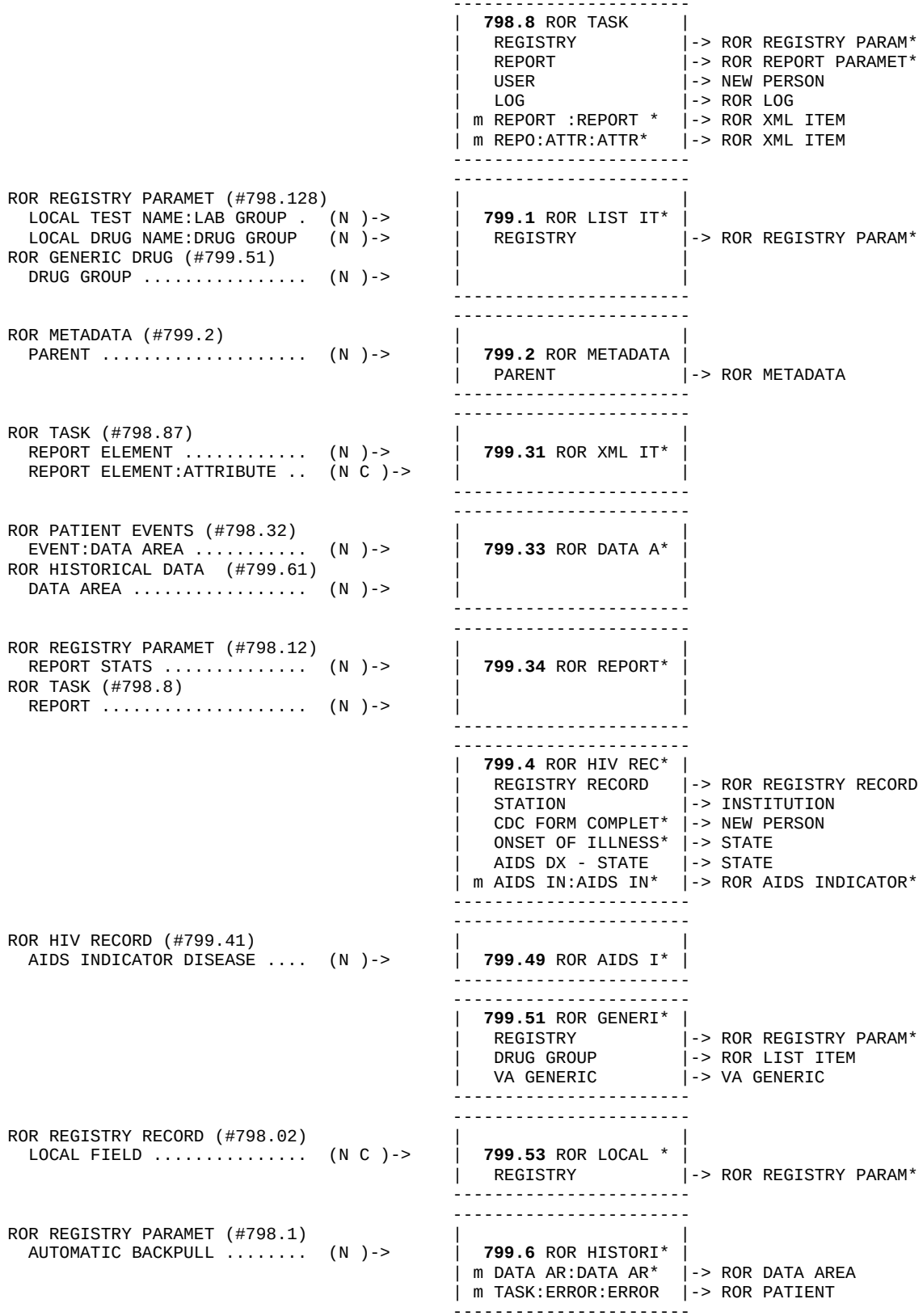
The following files are exported with the CCR software.

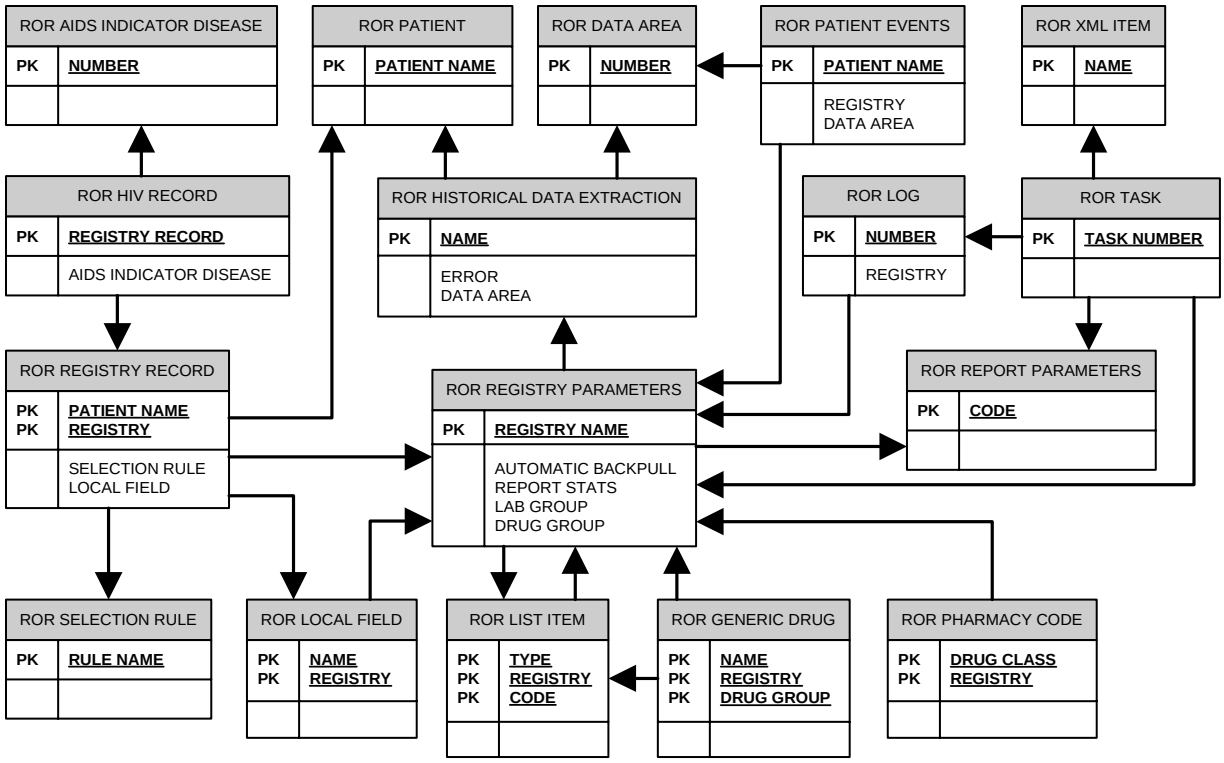
File Number	File Name	Description
798	ROR REGISTRY RECORD	The ROR REGISTRY RECORD file contains records of local registries. Each record associates a patient with a registry and contains registry-specific and additional service information.
798.1	ROR REGISTRY PARAMETERS	Records of the ROR REGISTRY PARAMETERS file contain various registry parameters and the data that indicates current registry state. Every registry must have a record in this file.
798.2	ROR SELECTION RULE	The ROR SELECTION RULE file contains definitions of the selection rules that are used to screen patients for addition to the registries.
798.3	ROR PATIENT EVENTS	The ROR PATIENT EVENTS file is used to store references to those patients that were processed with errors and were not added to the registry, even if they potentially should have been added (see the ERROR multiple). Moreover, the data references generated by the event protocols are stored in this file (see the EVENT multiple). These references are used to speed up the regular registry updates.
798.4	ROR PATIENT	The ROR PATIENT file contains patient information that is common for all local registries (mostly, demographic information). Demographic data from this file is compared to that from the PATIENT file (#2) to determine if it has been changed since the last registry data extraction. These fields are updated with the values from the PATIENT file and the UPDATE DEMOGRAPHICS flag is set to "Yes" in all active registry records of the patient.
798.6	ROR PHARMACY CODE	This file contains a list of pointers to the VA DRUG CLASS file (#50.605). Within the Pharmacy package each class is linked to a group of medications. Each class on this file has an associated registry; the "AC" cross-reference groups all entries by registry.
798.7	ROR LOG	The ROR LOG file is used for recording different kinds of events (errors, debug messages, etc.) that are generated by the CCR software.
798.8	ROR TASK	The ROR TASK file enhances the functionality of Taskman and supports the package APIs used by the GUI to schedule and control the tasks, and view and print the reports.
798.9	ROR LAB SEARCH	Lab search criteria are stored in this file. These criteria are referenced by the selection rules and used in the search for Lab results.
799.1	ROR LIST ITEM	This file contains code sets used within different registries.

File Number	File Name	Description
799.2	ROR METADATA	The ROR METADATA file contains descriptors of the files, data elements and APIs used by the registry update subsystem (search engine). These descriptors define relationships between files ("file-processing tree") used by the search engine, data elements, and APIs.
799.31	ROR XML ITEM	The ROR XML ITEM file contains a list of XML tags and attributes that can be used in the reports.
799.33	ROR DATA AREA	The ROR DATA AREA stores codes and names of the data areas referenced by the DATA AREA (the ROR HISTORICAL DATA EXTRACTION file) and the EVENT (the ROR PATIENT EVENTS file) multiples.
799.34	ROR REPORT PARAMETERS	The ROR REPORT PARAMETERS file stores the report definitions that are used by the ROR REPORT SCHEDULE remote procedure to schedule the reports.
799.4	ROR HIV RECORD	The ROR HIV RECORD file stores the patients' data specific to the Human Immunodeficiency Virus Registry (CCR:HIV).
799.49	ROR AIDS INDICATOR DISEASE	The ROR AIDS INDICATOR DISEASE file contains definitions of the AIDS indicator diseases referenced by Part VIII of the HIV CDC form.
799.51	ROR GENERIC DRUG	This file contains a list of registry specific generic drugs.
799.53	ROR LOCAL FIELD	The ROR LOCAL FIELD file stores definitions of local registry-specific fields created at the site.
799.6	ROR HISTORICAL DATA EXTRACTION	Records of this file store parameters of the historical data extractions (backpulls) performed on the registries and reflect status of these data extractions.

File Diagrams




798.8 ROR TASK
REGISTRY |-> ROR REGISTRY PARAM*
REPORT |-> ROR REPORT PARAMET*
USER |-> NEW PERSON
LOG |-> ROR LOG
m REPORT :REPORT * |-> ROR XML ITEM
m REPO:ATTR:ATTR* |-> ROR XML ITEM
ROR REGISTRY PARAMET (#798.128)
LOCAL TEST NAME:LAB GROUP . (N)->
LOCAL DRUG NAME:DRUG GROUP (N)->
ROR GENERIC DRUG (#799.51)
DRUG GROUP ..... (N)->
799.1 ROR LIST IT*
REGISTRY |-> ROR REGISTRY PARAM*
ROR METADATA (#799.2)
PARENT ..... (N)->
799.2 ROR METADATA
PARENT |-> ROR METADATA
ROR TASK (#798.87)
REPORT ELEMENT ..... (N)->
REPORT ELEMENT:ATTRIBUTE .. (N C)->
799.31 ROR XML IT*
ROR PATIENT EVENTS (#798.32)
EVENT:DATA AREA ..... (N)->
ROR HISTORICAL DATA (#799.61)
DATA AREA ..... (N)->
799.33 ROR DATA A*
ROR REGISTRY PARAMET (#798.12)
REPORT STATS ..... (N)->
ROR TASK (#798.8)
REPORT ..... (N)->
799.34 ROR REPORT*
799.4 ROR HIV REC*
REGISTRY RECORD |-> ROR REGISTRY RECORD
STATION |-> INSTITUTION
CDC FORM COMPLET* |-> NEW PERSON
ONSET OF ILLNESS* |-> STATE
AIDS DX - STATE |-> STATE
m AIDS IN:AIDS IN* |-> ROR AIDS INDICATOR*
ROR HIV RECORD (#799.41)
AIDS INDICATOR DISEASE .... (N)->
799.49 ROR AIDS I*
799.51 ROR GENERI*
REGISTRY |-> ROR REGISTRY PARAM*
DRUG GROUP |-> ROR LIST ITEM
VA GENERIC |-> VA GENERIC
ROR REGISTRY RECORD (#798.02)
LOCAL FIELD ..... (N C)->
799.53 ROR LOCAL *
REGISTRY |-> ROR REGISTRY PARAM*
ROR REGISTRY PARAMET (#798.1)
AUTOMATIC BACKPULL ..... (N)->
799.6 ROR HISTORI*
m DATA AR:DATA AR* |-> ROR DATA AREA
m TASK:ERROR:ERROR |-> ROR PATIENT


ROR AIDS INDICATOR DISEASE
PK NUMBER
ROR PATIENT
PK PATIENT NAME
ROR DATA AREA
PK NUMBER
ROR PATIENT EVENTS
PK PATIENT NAME
REGISTRY
DATA AREA
ROR XML ITEM
PK NAME
ROR HIV RECORD
PK REGISTRY RECORD
AIDS INDICATOR DISEASE
ROR HISTORICAL DATA EXTRACTION
PK NAME
ERROR
DATA AREA
ROR LOG
PK NUMBER
REGISTRY
ROR TASK
PK TASK NUMBER
ROR REGISTRY RECORD
PK PATIENT NAME
PK REGISTRY
SELECTION RULE
LOCAL FIELD
ROR REGISTRY PARAMETERS
PK REGISTRY NAME
AUTOMATIC BACKPULL
REPORT STATS
LAB GROUP
DRUG GROUP
ROR REPORT PARAMETERS
PK CODE
ROR SELECTION RULE
PK RULE NAME
ROR LOCAL FIELD
PK NAME
PK REGISTRY
ROR LIST ITEM
PK TYPE
PK REGISTRY
PK CODE
ROR GENERIC DRUG
PK NAME
PK REGISTRY
PK DRUG GROUP
ROR PHARMACY CODE
PK DRUG CLASS
PK REGISTRY

Globals

Upgrade Installation

No new globals are exported/allocated by the ROR 1.5 build if you install it an account that already has CCR v1.0 installed.

Virgin Installation

Two new globals are created during a virgin installation of the KIDS build ROR 1.5: ^ROR and ^RORDATA.

The ^ROR global is quite small and mostly static. It contains the registry parameters, selection rules, Lab search definitions, etc.

The ^RORDATA global is a dynamic global and under most circumstances will be large. It will contain the registries, error logs, list of the event references, reports, etc. The sustained growth of ^RORDATA depends on the number of new patients in the registries (about 200 bytes per patient).

However, in the first couple of weeks the global will grow faster because of the error logs (the ROR LOG file) and event references (the EVENT multiple of the ROR PATIENT EVENTS file). Both files are self-maintained and the nightly task (the Registry Update & Data Extraction [ROR TASK] option) purges the old records from these files automatically. The initial growth of these files depends on activity level (number of events) and quality of the data (number of error messages stored in the logs) at your site.

Temporary Globals

The CCR package uses the ^TMP and ^XTMP globals quite intensively, especially during the initial registry population. Please make sure that these globals are allocated in the database with enough free space.

Routines

Routine List

The following M routines are included in the KIDS build ROR 1.5 (checksums were generated using the CHECK^XTSUMBLD):

Routine	Checksum		Short Description
	Old	New	
ROR	2393819	2717801	CLINICAL CASE REGISTRIES
ROR01	1117	1117	CLINICAL CASE REGISTRIES
ROR02	1122	1122	CLINICAL CASE REGISTRIES
ROR10	5784769	7730208	NIGHTLY TASK UTILITIES
RORACK	4221963	n/a	
RORACK01	6457683	n/a	
ROR11	n/a	8580380	NIGHTLY TASK UTILITIES
RORAPI01	2291186	1957725	CLINICAL REGISTRIES API
RORBIN	n/a	2967124	BINARY OPERATIONS
RORDD	4886229	4656034	DATA DICTIONARY UTILITIES
RORDD01	919515	3401360	DATA DICTIONARY UTILITIES
RORERR	3863551	4405971	ERROR PROCESSING
RORERR10	9157206	n/a	
RORERR11	17589767	n/a	
RORERR12	13407882	n/a	
RORERR20	13500365	14492523	LIST OF ERROR MESSAGES
ROREVT01	2008294	2008294	EVENT PROTOCOLS
ROREXPR	3054011	5694255	PREPARATION FOR DATA EXTRACTION
ROREXT	4259663	3147105	DATA EXTRACTION & TRANSMISSION
ROREXT01	4887747	8425154	EXTRACTION & TRANSMISSION PROCESS
ROREXT02	4504914	5834876	DEFAULT MESSAGE BUILDER
ROREXT03	1955488	4554817	REGISTRY DATA EXTRACTION (OVERFLOW)
ROREXTUT	5466521	5555893	DATA EXTRACT UTILITIES
RORHDT	3515691	3349203	HISTORICAL DATA EXTRACTION
RORHDT01	2383372	1390687	HISTORICAL DATA EXTRACTION STATUS
RORHDT02	2424530	2997526	CREATE EXTRACTION TASK RECORDS
RORHDT03	4235780	4297815	MANIPULATIONS WITH EXTRACTION TASKS
RORHDT04	8399917	9379124	HISTORICAL DATA EXTRACTION PROCESS
RORHDT05	2635437	2711736	HISTORICAL DATA EXTRACTION FUNCTIONS
RORHDT06	n/a	3568354	HISTORICAL DATA EXTRACTION PARAMETERS
RORHDTAC	3280350	2681469	DATA EXTRACTION ACTION CONFIRMATIONS
RORHDTUT	4590218	5831331	HISTORICAL DATA EXTRACTION UTILITIES
RORHIV03	n/a	4806950	CONVERSION OF THE FILE #158
RORHIVUT	n/a	357536	HIV UTILITIES
RORHL01	2652082	1491461	HL7 PATIENT DATA: PID,ZSP,ZRD
RORHL02	7424588	5546944	HL7 REGISTRY DATA: CSP,CSR,CSS
RORHL03	5325577	5258533	HL7 PHARMACY: ORC,RXE
RORHL031	7575501	6235058	HL7 PHARMACY: UTILITIES
RORHL04	5193863	5297245	HL7 RADIOLOGY: OBR,OBX

Routine	Checksum		Short Description
	Old	New	
RORHL05	1858773	4084796	HL7 AUTOPSY: OBR
RORHL06	4688456	4217993	HL7 LIVER BIOPSY: OBR,OBX
RORHL07	4114719	3246023	HL7 INPATIENT PHARMACY: ORC,RXE
RORHL071	4095427	3217396	HL7 IV PHARMACY: ORC,RXE
RORHL08	6190681	5887870	HL7 INPATIENT DATA: PV1,OBR
RORHL081	7681710	7585616	HL7 INPATIENT DATA: OBX
RORHL09	6760261	6026195	HL7 OUTPATIENT DATA: PV1,OBR,OBX
RORHL10	6840817	5509115	HL7 SURGICAL PATHOLOGY DATA: OBR,OBX
RORHL11	5507013	4565613	HL7 CYTOPATHOLOGY DATA: OBR,OBX
RORHL12	2446424	2399116	HL7 MICROBIOLOGY DATA: OBR
RORHL121	10798141	9878360	HL7 MICROBIOLOGY DATA: OBX
RORHL13	3406802	3466976	HL7 MEDICAL PROCEDURES (EKG): OBR,OBX
RORHL14	5434428	5357488	HL7 ALLERGY DATA: OBR,OBX
RORHL15	5689840	5532311	HL7 IV DATA: OBR, OBX
RORHL16	3293867	3252430	HL7 VITALS DATA: OBR,OBX
RORHL17	5969995	4936158	HL7 PROBLEM LIST: OBR,OBX
RORHL21	1631067	n/a	
RORHL7	5463554	4806448	HL7 UTILITIES
RORHL7A	2252045	4554021	HL7 UTILITIES
RORHLUT1	1863278	1806943	HL7 UTILITIES (HIGH LEVEL)
RORICR01	1541289	n/a	
RORICR02	2080214	n/a	
RORICR03	4746011	n/a	
RORICREX	3978828	n/a	
RORICRUT	362893	n/a	
RORKIDS	6161632	6182684	INSTALL UTILITIES (LOW-LEVEL)
RORLOCK	4131518	4131518	LOCKS AND TYRANSACTIONS
RORLOG	5965990	6030893	LOG FILE MANAGEMENT
RORLOG01	3182899	3716383	LOG FILE MANAGEMENT (UTILITIES)
RORNTEG	4216987	4248987	KERNEL - Package checksum checker
RORNTEG0	3102911	3140604	KERNEL - Package checksum checker
RORP008	3623044	n/a	
RORP000	n/a	10708753	CCR V1.5 INSTALLATION ROUTINE
RORP000A	n/a	10206450	CCR V1.5 PRE-INSTALL CODE
RORP000B	n/a	11070750	CCR V1.5 POST-INSTALL CODE
RORPUT01	5495626	5495626	EDIT LOINC AND DRUG CODE MULTIPLES
RORPUT02	n/a	5936706	DATA TRANSPORT FOR KIDS
RORREP01	9015849	9158405	REGISTRY COMPARISON REPORT
RORREP02	10910524	10911089	VERSION COMPARISON REPORT (ICR)
RORRP007	4488913	4442755	RPC: LOGS & MESSAGES
RORRP010	1854669	1881192	RPC: TASK MANAGER
RORRP011	1877613	2555508	RPC: TASK MANAGER (REPORTS)
RORRP012	2760144	1144389	RPC: MISCELLANEOUS
RORRP013	4685153	4665100	RPC: ACCESS & SECURITY
RORRP014	1851772	2785597	RPC: REGISTRY INFO & PARAMETERS
RORRP015	3365112	3365112	RPC: DIVISIONS AND HOSPITAL LOCATIONS

Routine	Checksum		Short Description
	Old	New	
RORRP016	1837419	3160766	RPC: ICD-9 CODES
RORRP017	2082982	1924388	RPC: DRUGS AND CLASSES
RORRP018	1399897	1666201	RPC: LIST OF LAB TESTS
RORRP019	3662396	5814698	RPC: LIST OF PATIENTS
RORRP020	5106473	4077705	RPC: PATIENT DATA UTILITIES
RORRP021	2207749	3721454	RPC: PATIENT DATA
RORRP022	1246520	1262090	RPC: SELECTION RULES
RORRP023	2273081	2273081	RPC: REGISTRY COORDINATORS
RORRP024	3821351	3821351	RPC: VISTA USERS
RORRP025	4917408	4917408	RPC: RORICR CDC LOAD
RORRP026	10022660	10176668	RPC: CDC UTILITIES
RORRP027	6640755	6589308	RPC: RORICR CDC SAVE
RORRP029	1527601	1527601	RPC: ADDRESS UTILITIES
RORRP030	4942418	1101835	RPC: PATIENT DELETE
RORRP031	4897990	4897990	RPC: LOCAL LAB TEST NAMES
RORRP032	4897358	5035421	RPC: LOCAL DRUG NAMES
RORRP033	4204729	2395118	RPC: HIV PATIENT LOAD
RORRP034	3265353	3041648	RPC: HIV PATIENT SAVE/CANCEL
RORRP035	1615985	1597804	RPC: GENERIC DRUG NAMES
RORRP036	n/a	1773818	RPC: HEPC PATIENT LOAD
RORRP037	n/a	2638742	RPC: HEPC PATIENT SAVE/CANCEL
RORRP038	n/a	4339809	RPC: USER AND PACKAGE PARAMETERS
RORRP040	n/a	4049054	RPC: LOCAL REGISTRY FIELDS
RORRP041	n/a	2687037	RPC: REGISTRY-SPECIFIC LAB RESULTS
RORRP042	n/a	2333070	RPC: CPT CODES
RORRP1	2796927	n/a	
RORRP10	476541	n/a	
RORRP2	4566009	n/a	
RORRP3	3482249	n/a	
RORRP4	5079227	n/a	
RORRP5	1825009	n/a	
RORRP6	3979336	n/a	
RORRP7	4925487	n/a	
RORRP8	3614530	n/a	
RORRP9	7962639	n/a	
RORSET01	4676823	4563146	REGISTRY SETUP ROUTINE
RORSETU1	2833894	2833894	SETUP UTILITIES (USER INTERFACE)
RORSETU2	3134457	2447593	SETUP UTILITIES (REGISTRY)
RORTSITE	4570058	n/a	
RORTMP	n/a	679112	TEMPORARY GLOBAL STORAGE
RORTSK	3791239	3964693	TASK MANAGER
RORTSK01	6875571	7070947	(SUB)TASK UTILITIES
RORTSK02	4617240	4523778	TASK MANAGER UTILITIES
RORTSK03	2086919	2058050	TASK MANAGER OVERFLOW CODE
RORTSK10	5534300	5894436	REPORT RETRIEVING UTILITIES
RORTSK11	3125173	3325690	REPORT CREATION UTILITIES

Routine	Checksum		Short Description
	Old	New	
RORTSK12	n/a	2274583	REPORT STATS UTILITIES
RORTSK13	n/a	5581664	PARSER FOR REPORT PARAMETERS
RORTSK14	n/a	2157270	PARSER FOR REPORT PARAMETERS (TOOLS)
RORTXT	141117	141117	TEXT RESOURCE UTILITIES
RORUPD	3654485	3118364	REGISTRY UPDATE
RORUPD01	7989261	7989261	PROCESSING OF THE FILES
RORUPD04	5149249	5421758	PROCESSING OF THE LAB DATA
RORUPD05	7177293	7081088	REGISTRY UPDATE (MULTITASK)
RORUPD06	3084967	3084967	REGISTRY UPDATE (MISCELLANEOUS)
RORUPD07	2080523	2356625	PROCESSING OF THE 'PROBLEM' FILE
RORUPD08	3835247	4579765	PROCESSING OF 'VISIT' & 'V POV' FILES
RORUPD09	2534692	2869944	PROCESSING OF THE 'PTF' FILE
RORUPD50	3446977	3764045	UPDATE THE PATIENT IN THE REGISTRIES
RORUPD51	6373941	8479867	UPDATE PATIENT'S DEMOGRAPHIC DATA (1)
RORUPD52	2583157	2557167	UPDATE PATIENT'S DEMOGRAPHIC DATA (2)
RORUPD62	n/a	1941130	HIV-SPECIFIC REGISTRY UPDATE CODE
RORUPDUT	7040706	7113425	REGISTRY UPDATE UTILITIES
RORUPEX	3382608	3382608	SELECTION RULE EXPRESSION PARSER
RORUPP01	3620688	3620688	PATIENT EVENTS (ERRORS)
RORUPP02	3149282	3149282	PATIENT EVENTS (EVENTS)
RORUPR	5403597	5364149	SELECTION RULES PREPARATION
RORUPR1	10865390	10955587	SELECTION RULES PREPARATION
RORUTL01	4698317	4692322	UTILITIES
RORUTL02	5461265	5296575	UTILITIES
RORUTL03	8322358	8066801	ENCRYPTION/DECRYPTION
RORUTL04	2076790	2076790	Registry Stat Report
RORUTL05	6817092	7047621	MISCELLANEOUS UTILITIES
RORUTL06	9129215	10075666	DEVELOPER ENTRY POINTS
RORUTL07	2762456	2099977	TEST ENTRY POINTS
RORUTL08	3052928	3164502	REPORT PARAMETERS UTILITIES
RORUTL09	1836557	1836557	LIST ITEM UTILITIES
RORUTL10	5738979	5740794	LAB DATA SEARCH
RORUTL11	942933	942933	ACCESS AND SECURITY UTILITIES
RORUTL14	1275115	1375993	PHARMACY DATA SEARCH
RORUTL15	5565629	6511088	PHARMACY DATA SEARCH (TOOLS)
RORUTL16	1877801	2364514	PHARMACY DATA SEARCH (UTILITIES)
RORUTL17	6970881	6994520	REGISTRY INFORMATION UTILITIES
RORUTL18	927178	3250231	MISCELLANEOUS UTILITIES
RORUTL19	n/a	1203624	PATIENT DATA UTILITIES
RORVM001	1220339	609363	MAINTENANCE OPTIONS
RORX000	2233772	2233772	DUMMY REPORT
RORX001	6923293	5778832	LIST OF REGISTRY PATIENTS
RORX002	3760280	3917612	CURRENT INPATIENT LIST
RORX003	5404752	5545892	GENERAL UTLIZATION AND DEMOGRAPHICS
RORX003A	7951022	7545014	GENERAL UTLIZATION AND DEMOGRAPHICS
RORX004	4970351	3369267	CLINIC FOLLOW UP

Routine	Checksum		Short Description
	Old	New	
RORX005	2080717	1558283	INPATIENT UTILIZATION
RORX005A	7242281	5728919	INPATIENT UTILIZATION (QUERY)
RORX005B	6769514	2068516	INPATIENT UTILIZATION (SORT)
RORX005C	11147808	6689502	INPATIENT UTILIZATION (STORE)
RORX005U	266710	n/a	
RORX006	1929501	1957749	LAB UTILIZATION
RORX006A	5949892	4045076	LAB UTILIZATION (QUERY & SORT)
RORX006C	4940545	4479620	LAB UTILIZATION (STORE)
RORX007	7810802	6378955	RADIOLOGY UTILIZATION
RORX007A	2762724	2467042	RADILOGY UTILIZATION (OVERFLOW)
RORX008	1936486	2076427	VERA REIMBURSEMENT REPORT
RORX008A	6748545	7092822	VERA REIMBURSEMENT REPORT
RORX009	2635430	3203627	PHARMACY PRESCRIPTION UTILIZATION
RORX009A	7103569	10011538	PRESCRIPTION UTILIZ. (QUERY & SORT)
RORX009C	7407361	9417785	PRESCRIPTION UTILIZ. (STORE)
RORX010	5947630	6851839	LAB TESTS BY RANGE REPORT
RORX011	7479478	7772559	PATIENT MEDICATION HISTORY
RORX012	2280944	3000028	COMBINED MEDS AND LABS REPORT
RORX012A	6424353	10697075	COMBINED MEDS AND LABS (QUERY & STORE)
RORX013	1826953	1600392	DIAGNOSIS CODES REPORT
RORX013A	7146803	6836799	DIAGNOSIS CODES (QUERY & SORT)
RORX013C	3062651	3235328	DIAGNOSIS CODES (STORE)
RORX014	1995239	2137320	REGISTRY MEDICATIONS REPORT
RORX014A	6019953	6097645	REGISTRY MEDS REPORT (QUERY & SORT)
RORX015	n/a	1566763	PROCEDURES (CPT) REPORT
RORX015A	n/a	3958983	PROCEDURES (QUERY & SORT)
RORX015C	n/a	3279733	PROCEDURES (STORE)
RORX016	n/a	1551044	OUTPATIENT UTILIZATION
RORX016A	n/a	2574228	OUTPATIENT UTILIZATION (QUERY)
RORX016B	n/a	2976507	OUTPATIENT UTILIZATION (SORT)
RORX016C	n/a	4657732	OUTPATIENT UTILIZATION (STORE)
RORXU001	2415732	2567828	REPORT UTILITIES
RORXU002	7009537	7493232	REPORT BUILDER UTILITIES
RORXU003	5395052	5759589	REPORT BUILDER UTILITIES
RORXU004	405249	405249	REPORT UTILITIES (STATISTICS)
RORXU005	2334516	3020773	REPORT BUILDER UTILITIES
RORXU006	4584240	6157436	REPORT PARAMETERS
RORXU007	5726275	6706394	PHARMACY-RELATED REPORT PARAMETERS

Routine Sub-Namespaces

Namespace	Description
RORAPI*	Supported APIs
RORDD*	Routines used by the Data Dictionary
RORERR*	Error processing
ROREVT*	Event protocols
ROREX*	Regular data extraction & transmission
RORHDT*	Historical data extraction
RORHIV*	HIV Registry-specific routines
RORHL*	HL7 utilities
RORKIDS*	Low-level installation utilities (KIDS)
RORLOCK*	Locks and transactions
RORLOG*	Error recording
RORPnnn*	Patch installation routines (KIDS), nnn – patch number
RORPUT*	High-level installation utilities
RORREP*	Roll-and-scroll reports
RORRP*	Remote procedures
RORSET*	Registry setup routines
RORTXT*	Text resource routines
RORUP*	Registry update
RORUTL*	Utilities
RORVM*	Entry points for VistA menu options
RORXnnn*	XML reports, nnn – report code
RORXU*	Utilities for XML reports

XINDEX

XINDEX is a routine that produces a report called the VA Cross-Reference. This report is a cross-reference listing of one routine or a group of routines. XINDEX provides a summary of errors and warnings for routines that do not comply with VA programming standards and conventions, a list of local and global variables and what routines they are referenced in, and a listing of internal and external routine calls.

XINDEX is invoked from programmer mode: D ^XINDEX.

When selecting routines, select ROR*.

Exported Options

The menus and options exported by the build ROR 1.5 are all located in the ROR namespace. Individual options can be viewed by using the Option Function Inquiry [XUINQUIRE] option. This option can be found on the Menu Management [XUMAINT] menu, which is a sub-menu of the Systems Manager Menu [EVE] menu.

A diagram of the structure of the CCR menu and its options can be produced by using the Diagram Menus [XUUSERACC] option. Choosing XUUSERACC permits you to further select Menu Diagrams (with Entry/Exit Actions) [XUUSERACC1] or Abbreviated Menu Diagrams [XUUSERACC2] options.

Option Name	Description
Broker Context [ROR GUI]	This option holds the references to the package RPC Broker Calls used by the GUI to create an application context (for security purposes).
Registry Setup [ROR SETUP]	This option allows the user to enter parameters of the registry setup process, and to schedule the task that will populate the registry.
Registry Update & Data Extraction [ROR TASK]	This option starts the registry update and data extraction task that processes registries defined by the **TASK PARAMETERS** field. The field must contain a list of registry names separated by commas. The following task parameters are optional. They can be defined on the second page of the option scheduling form (as the pairs of the variable names and values). **RORFLCLR** (Default: "") and **RORFLSET** (Default: "EX") These two parameters override the values of the flags that control the processing. Add the flags to the RORFLCLR variable to clear them and to the RORFLSET variable to set them. Below are the possible values of the parameters (can be combined): "D" Run the task(s) in Debug Mode "E" Use the event references (file #798.3) "S" Run the data extraction in single-task mode "X" Suspend the data extraction task in the same way as the registry update. **RORMNTSK** (Default: "2-3-AUTO") Maximum number of the registry update subtasks. If this parameter is less than 2, all patients will be processed by the single main task. Otherwise, all patients can be distributed among several subtasks. If "N-M-AUTO" is passed as the value of this parameter and difference between the end and start dates of the registry update is more than M days then N subtasks will be started. Otherwise, the single task will run. **RORSUSP** (Default: "") Suspension parameters of the registry update and data extraction subtasks. The subtasks are not suspended by default. Parameter should contain start and end times of the suspension (in external format) separated by the "-". For example, the "7:00-18:00" value will suspend the subtasks from 7am until 6pm each day except weekends and holidays.
Create Extraction Tasks [RORHDT CREATE]	This option spreads historical data processing over several tasks in order to speed up the process.

Option Name	Description
Edit [RORHDT EDIT]	This option displays a submenu when selected. The submenu contains options that are used to create and edit the parameters of the historical data extraction.
Edit data extraction [RORHDT EDIT EXTRACTION]	This option allows users to edit parameters of manual historical data extraction in the ROR HISTORICAL DATA EXTRACTION file (#799.6).
Edit Task Descriptor [RORHDT EDIT TASK]	This option allows users to edit parameters of historical data extraction tasks in the ROR HISTORICAL DATA EXTRACTION file (#799.6).
Display Task Log [RORHDT LOG]	The Display Task Log option lets users see a log of any running or finished data extraction task. If any errors have been found, they will be logged here. Any errors should be fixed and then the task re-started.
Historical Data Extraction [RORHDT MAIN]	This is a top level management option for the historical data extraction that gathers historical data for each registry patient that exists on the ROR REGISTRY RECORD file (#798) and creates flat text files that can be sent by FTP to a pre-defined area at the AAC. This is done independently of daily updates and extracts and requires some intervention of an IRM.
Start a Task [RORHDT START]	This option starts a data extraction task that was created with the Create Extraction Tasks option.
Display Extraction Status [RORHDT STATUS]	This option displays the status of a selected data extraction. The historical data extraction start and end dates, the output directory name, processed registries, and task table are displayed.
Stop a Task [RORHDT STOP]	This option allows users to stop a running task or de-queue a task that is scheduled to run in the future.
ICR Version Comparison Report [RORICR VERSION COMPARISON]	Provides a detailed comparison between the CCR:HIV and Immunology Case Registry v2.1. The ICR was officially retired on October 27, 2005 (patch IMR*2.1*21) and replaced by CCR:HIV. This option is left for compatibility. If ICR v2.1 is not installed in the account, then the option will display an error message and quit.
Re-index the ACL cross-reference [RORMNT ACL REINDEX]	This option lets users re-index the "ACL" cross-reference of the ROR REGISTRY PARAMETERS file (#798.1). This cross-reference should be rebuilt after changes in the allocation of the security keys associated with any registry.
Edit Lab Search Criteria [RORMNT EDIT LAB SEARCH]	This option is used to edit the Lab search criteria (stored in the ROR LAB SEARCH file (#798.9)) that are used by the registry update process to find patients with positive registry-specific Lab results.
Edit Registry Parameters [RORMNT EDIT REG PARAMS]	This option can be used to edit registry parameters in the ROR REGISTRY PARAMETERS file (#798.1).
Clinical Case Registries Maintenance [RORMNT MAIN]	This menu contains miscellaneous maintenance options for the CCR package. Usually, they should be used only for troubleshooting.

Option Name	Description
List of Pending Errors [RORMNT PENDING ERRORS LIST]	The option prints a report containing list of patients (referenced by the ERROR multiples of the ROR PATIENT EVENTS file (#798.3)) having erroneous data. The list is sorted by value of the COUNTER field (number of times that an error was recorded for a patient). This report can be used to find patients ignored by the registry update (until someone fixes the error(s) and resets value of the COUNTER field to 1).
Pending Patients [RORMNT PENDING PATIENTS]	This menu groups the options used for maintenance of the ROR PATIENT EVENTS file (#798.3) containing event and error references.
Print Log Files [RORMNT PRINT LOGS]	This option can be used to print messages recorded by the CCR software.

Archiving and Purging

Archiving

No archiving functions are necessary with the CCR software.

Purging

Old event references are automatically purged by the nightly task (the [ROR TASK] option) from the EVENT multiple (2) of the ROR PATIENT EVENTS file (#798.3) no later than 60 days after they were entered there by the event protocols.

ROR LOG file entries (#798.7) are automatically purged 31 days after they are entered into this file.

Old tasks are automatically purged from the ROR TASK file (#798.8) 14 days after they are completed (the creation date is used for incomplete tasks).

Protocols

The following protocols are exported with the KIDS build ROR 1.5.

HL7 Protocols

- ROR-SITE-DRIVER
- ROR-SITE-SUBSCRIBER

Event Protocols

- ROR EVENT LAB

  This protocol is used by the CCR package to maintain references to patients who have new lab results. The protocol should be subscribed to the LR7O ALL EVSEND RESULTS protocol (this is done by the KIDS during the installation).

  If at least one of the defined registries enables event protocols, this protocol will process the Lab events and create references in the ROR PATIENT EVENTS file (#798.3). Otherwise, the protocol will be executed (if it is not disabled or unsubscribed manually) but will not call the processing routine (LAB^ROREVT01).

- ROR EVENT PTF

  This protocol is used by the CCR package to maintain references to patients who have new admissions. The protocol should be subscribed to the DGPM MOVEMENT EVENT protocol (this is done by the KIDS during the installation).

  If at least one of the defined registries enables event protocols, this protocol will process the movement events and create references in the ROR PATIENT EVENTS file (#798.3). Otherwise, the protocol will be executed (if it is not disabled or unsubscribed manually) but will not call the processing routine (PTF^ROREVT01).

- ROR EVENT VISIT

  This protocol is used by the CCR package to maintain references to patients who have new data in the V-files (VISIT, V POV, etc). The protocol should be subscribed to the PXK VISIT DATA EVENT protocol (this is done by the KIDS during the installation).

  If at least one of the defined registries enables event protocols, this protocol will process the Lab events and create references in the ROR PATIENT EVENTS file (#798.3). Otherwise, the protocol will be executed (if it is not disabled or unsubscribed manually) but will not call the processing routine (VISIT^ROREVT01).

Application Programmer Interfaces (APIs)

The Data Base Agreement (DBIA) #4166 defines two APIs (controlled subscription) that are supplied by the Clinical Case Registries package. The first of these APIs enumerates patients of the given registry (e.g., Hepatitis C), and the other API enumerates registries within which the patient exists.

$$PATITER^RORAPI01(IDESC,REGNAME,MODE) - Creates an iterator of patients in the registry.

.IDESC	Reference to a local variable where the iterator descriptor will be created
REGNAME	Registry name
[MODE]	Bit flags that define the iteration mode (3 by default): 1 Active patients (confirmed and not deleted) 2 Reserved

Return Values:

<0	Error code
0	Ok

$$NEXTPAT^RORAPI01(IDESC) - Returns the next patient in the registry.

.IDESC	Reference to the iterator descriptor created by the $$PATITER^RORAPI01.

Return Values:

<0	Error code
""	No more patients in the registry
>0	Patient IEN (DFN)

$$REGITER^RORAPI01(IDESC,PATIEN,MODE) - Creates an iterator of patient registries.

.IDESC	Reference to a local variable where the iterator descriptor will be created
PATIEN	Patient IEN (DFN)
[MODE]	Bit flags that define the iteration mode (3 by default): 1 Registries where the patient is active (confirmed and not deleted) 2 Reserved

Return Values:

<0	Error code
0	Ok

$$NEXTREG^RORAPI01(IDESC) - Returns the next patient in the registry.

.IDESC	Reference to the iterator descriptor created by the $$REGITER^RORAPI01.

Return Values:

<0	Error code
""	No more registries for the patient
>0	Registry IEN

Below is a usage example for these APIs taken from the source code of the RORAPI01 routine:

```
N BUF,IPD,IRD,PATIEN,RC,REGIEN
W !,"   Patient  Registries"
W !,"   -------  ----------"
;--- Initialize the patient iterator
S RC=$$PATITER^RORAPI01(.IPD,"VA HEPC")
I RC<0  W "RC= ",RC,!  Q
;--- Browse through the registry patients
F  S PATIEN=$$NEXTPAT^RORAPI01(.IPD)  Q:PATIEN'>0  D
. W !,$J(PATIEN,10),"  "
. ;--- Initialize the registry iterator
. S RC=$$REGITER^RORAPI01(.IRD,PATIEN)
. I RC<0  W "RC= ",RC  Q
. ;--- Browse through the patient's registry records
. S BUF=""
. F  S REGIEN=$$NEXTREG^RORAPI01(.IRD)  Q:REGIEN'>0  D
. . S BUF=BUF_","_REGIEN
. W $P(BUF,",",2,999)
;---
W !
Q
```

The following screenshot illustrates the output of the sample code:

```
>D ^RORAPI01

   Patient  Registries
   -------  ----------
        40  1
         4  1
        13  1
        90  1
        14  1
        43  1
         5  1
        37  2,1
        38  1,2
```

External Interfaces

The National Database has an HL7 interface. This interface receives all data transmissions sent from all sites nationally, converts the data, and enters it into an SQL-enabled database.

External Relations

Before the KIDS build ROR 1.5 can be installed, the following software applications and patches must be installed and ***fully*** patched in your accounts:

Application Name	Minimum Version
Automated Information Collection System (AICS)	V 3.0
Adverse Reaction Tracking (ART)	V 4.0
Authorization/Subscription Utility (ASU)	V 1.0
Consult/Request Tracking	V 3.0
Gen. Med. Rec.-Vitals	V 4.0
Health Summary	V 2.7
HL7	V 1.6
Inpatient Medications (IM)	V 5.0
Kernel	V 8.0
Laboratory	V 5.2
Lexicon Utility	V 2.0
National Drug File (NDF)	V 4.0
Order Entry/Results Reporting (OE/RR)	V 3.0
Outpatient Pharmacy	V 7.0
Patient Care Encounter (PCE)	V 1.0
Pharmacy Data Management (PDM)	V 1.0
Problem List	V 2.0
Radiology/Nuclear Medicine	V 5.0
RPC Broker	V 1.1
Registration	V 5.3
Scheduling	V 5.3
Text Integration Utilities (TIU)	V 1.0
ToolKit	V. 7.3
VA FileMan	V 22.0
Visit Tracking	V 2.0

Required Patches

Before the installation of the build ROR 1.5, the following patches **must** be installed:

Application Name	Patches
Health Level Seven	HL*1.6*57
Registration	DG*5.3*471, DG*5.3*415, DG*5.3*631
Automated Lab Instruments	LA*5.2*69
Lab Service	LR*5.2*222, LR*5.2*232
Medicine or Clinical Procedures	MC*2.3*34 or MD*1.0*1
National Drug File	PSN*4.0*53, PSN*4*79, PSN*4.0*104
Pharmacy Data Management	PSS*1.0*101, PSS*1.0*105, PSS*1.0*97
Clinical Case Registries	ROR*1*8 (this patch is not required for "virgin" installation)
Scheduling	SD*5.3*254, SD*5.3*131

Database Integration Agreements (DBIAs)

The following is a list of approved DBIAs for CCR v1.5:

File Name	File Number	Access	DBIA	Comment
PATIENT	2	Browse IENs .02, .03, .06, .09, .351, 63	#10035	Supported
		6^VADPT (.1112, .301, .302, .323)	#10061	Supported
		$$GETICN^MPIF001 (991.01)	#2701	Supported
		-9 node	#2762	Private
		.3721 (multiple)	#174	Controlled
		63	#998	Controlled
		EN^VAFHLPID	#263	Supported
CLINIC STOP	40.7	^DIC(40.7,D0,0) .01, 1, 2 ^DIC(40.7,'C',X,D0)	93-C	Controlled
MEDICAL CENTER DIVISION	40.8	.01, 1 "B", "C"	#2438	Controlled
SPECIALTY	42.4	^DIC(42.4,D0,0) .01	#997	Controlled
CLINIC STOP	44	^SC(D0,0) 8	93-A	Controlled
		3.5	#10040	Supported
PTF	45	RPC^DGPTFAPI	#3157	Supported
		80 ^DGPT('AAD',	#3545	Private

File Name	File Number	Access	DBIA	Comment
		Access to multiple fields	#92	Controlled
PTF CLOSE OUT	45.84	.01 "AC"	#994	Controlled
PHARMACY PATIENT	55	^PS(55,'AUDS',X,D0,D1) ^PS(55,D0,5, .01, .5, 3, 1, 68 ^PS(55,D0,5,D1,2) 9, 10, 26, 34 ^PS(55,D0,5,D1,1,D2,0) .01, .02, .03 ^PS(55,D0,5,D1,11,D2,0) .01, .02, .05, .03, .04, .06, .07, .08 ^PS(55,D0,'IV', .01, .02, .03, .04, 108, .06, .08, .08, 104, 106, 132, .22 ^PS(55,D0,'IV',D1,AD,D2,0) .01,.02 ^PS(55,D0,'IV',D1,SOL,D2,0) .01, 1 ^PS(55,D0,'IV',D1,LAB,D2,0) 1, 2, 4, 6	#2497	Controlled
		^PS(55,D0,5,D1,0) .01, 3, 4, 7, .25, 12, 39 ^PS(55,D0,5,D1,2) 26, 10, 34 ^PS(55,D0,5,D1,1,D2,0) .01, .02 ^PS(55,DFN,5,'AUS',	#117	Controlled
		^PS(55,D0,'P',D1,0) .01 ^PS(55,DFN,'P','A',DATE,	90-B	Controlled
		OCL^PSOORRL, OEL^PSOORRL	#2400	Controlled
OUTPATIENT SITE	59	^PS(59,D0,0) .01, .06 ^PS(59,D0,INI) 100	#1876	Controlled
LAB	60	^LAB(60,D0,0) .01, 1, 4, 5 ^LAB(60,'B', ^LAB(60,'C', ^LAB(60,D0,2)	91-A	Controlled
		ATESTS^ORWLRR	#2947	Controlled
COLLECTION SAMPLE	62	^LAB(62,0) .01	#2210	Private
LAB DATA	63		67-C	Surgical pathology for liver biopsy

File Name	File Number	Access	DBIA	Comment
			#2503	Controlled
			91-B	Controlled
		Autopsy node	#3465	Private
		$$GCPR^LA7QRY	#3556	Controlled
		SPATH^LA7UTL03	#4343	Controlled
		CPATH^LA7UTL03	#4344	Controlled
		GETDATA^LA7UTL1A	#4335	Controlled
LABORATORY SITE	69.9	.01, 95.3	#3557	Private; Environment check routine
RAD/NUC MED PATIENT	70	^RADPT(D0,0) .01 ^RADPT(D0,'DT',D1,0) .01, 2, 3, 4 ^RADPT(D0,'DT',D1,'P',D2,0) 2, 3 6, 7, 8, 13, 14 ^RADPT(D0,'DT',D1,'P',D2,'M',D3,0) .01 ^RADPT(D0,'DT',D1,'P',D2,'CMOD',D3,0) 135 ^RADPT(D0,'DT',D1,'P',D2,'H', .01	#65	Controlled
RAD/NUC MED PROCEDURES	71	^RAMIS(71,D0,0) .01, 9 , 10 ^RAMIS(71,'D',X,DA) 9	118-B	Controlled
EXAMINATION STATUS	72	^RA(72,D0,0) .01 ^RA(72,'B',X,DA) .01 ^RA(72,'AA',	118-D	Controlled
RAD/NUC MED REPORTS	74	^RARPT(5 ^RARPT(D0,'R', .01 ^RARPT(D0,'I', .01 ^RARPT(D0,'H', .01	15-C	Private
LAB LOINC	95.3	.01, 95.3	#3557	Private
PROTOCOL	101	.01, 4	#872	Controlled; direct read in the screen; pointed to.

File Name	File Number	Access	DBIA	Comment
GMRV VITAL MEASUREMENT	120.5	EN1^GMRVUTO	#1446	Controlled
PATIENT ALLERGIES	120.8	^GMR(120.8,D0,10,D1,0) REACTION (10,.01) OTHER REACTION (10,1)	190-B	Controlled
PATIENT MOVEMENT	405	.01, .03, .06, .17 ^DGPM('AMV1', ^DGPM('ATT1',	#1480	Controlled
ELECTROCARDIOGRAM (EKG)	691.5	GET^MCARAPI	#3780	Private
		GET^MDAPI1	#3854	Private
HL7 ERROR MESSAGE FILE	771.7	.01	#4493	Private
VISIT	9000010		#1905	Controlled
		SELECTED^VSIT (returns selected visits)	1900-F	Controlled
		$$LOOKUP^VSIT (looks up a visit and returns its information)	1900-G	Controlled
			#1906	Controlled
		ENCEVENT^PXKENC	1889-F	Controlled
		Access to the 'AA' x-ref	#2309	Controlled
V POV	9000010.07	POV^PXAPIIB	#1554	Private
PROBLEM	9000011	ACTIVE^GMPLUTL	#928	Controlled
		$$MOD^GMPLUTL3	#2644	Controlled
		FileMan captioned output of entire PROBLEM record.	#2308	Controlled
		GETFLDS^GMPLEDT3	#2977	Controlled
		Subscription to the DGPM MOVEMENT EVENTS protocol	#1181	Controlled
		GET^GMPLWP	#4743	Controlled
	9000010.18 9000010.23 9000010.11 9000010.16 9000010.07 9000010.06 9000010.12 9000010.15 9000010 9000010.13 9000010	Subscription to the PXK VISIT DATA EVENT protocol	#1298	Controlled
		Subscription to the LR7O ALL EVSEND RESULTS	#3565	Controlled

File Name	File Number	Access	DBIA	Comment
		BHS^HLFNC3	#4481	Private
		$$EMPL^DGSEC4	#3646	Controlled
		BLDPID^VAFCQRY	#3630	Controlled
		EN^VAFHLZRD	#4535	Private
		$$EN^VAFHLZSP	#4536	Private

Internal Relations

There are no internal relations with this software.

Package-wide Variables

There are no package-wide variables in this software

Software Product Security

Only users with CCR security keys have access to the registries.

CCR transmits data to the national database through the VA network. This network has security protection in place.

All patients' Social Security Numbers (SSNs) are encrypted before transmission to an agreed-upon standard. The fields sent to AAC become readable upon receipt of the data; however, only high-level users have access to the unencrypted fields when viewing the national database.

Alerts

The system produces the following VA Alerts:

Alert	Addressee
When an access violation occurs	Coordinators
When the first update is completed (an e-mail is also sent to the mail group)	Initiator of the setup
When a report (or a generic task) is ready	Initiator of the report (generic task)
Unsent HL7 message (an e-mail is also sent to the mail group)	Coordinators
Problems with the nightly task	Coordinators
Historical data extraction task finished	Initiator of the task
Error during the pre- or post-install (if scheduled)	Initiator of the build installation

Remote Systems

Data will be transmitted to the National CCR Registry via the VistA HL7 system.

Contingency Planning

Sites utilizing CCR should develop a local contingency plan to be used in the event of product problems in a live environment. The facility contingency plan must identify the procedure for maintaining functionality provided by this package in the event of system outage. Field station Information Security Officers (ISOs) may obtain assistance from their Regional Information Officer (RISO).

Interfacing

No interfacing is used in the CCR software.

Electronic Signatures

No electronic signatures are used in the CCR software.

Security Keys

The following security keys are available:

- ROR VA HIV USER or ROR VA HIV ADMIN
- ROR VA HEPC USER or ROR VA HEPC ADMIN
- ROR VA IRM

Users with the ROR VA HIV/HEPC USER key will be displayed on the **Show Registry Users** window as "User". They can only run reports.

Users with the ROR VA HIV/HEPC ADMIN key will be displayed on the **Show Registry Users** window as "Administrator". They have full GUI access that enables them to run reports, create local fields, and edit, confirm and delete patient records.

Users with the ROR VA IRM key will be displayed on the **Show Registry Users** window as "IRM". Users with this security key have access to all CCR files in VistA but no access to the GUI. This key should be assigned to the IRM personnel authorized to maintain and troubleshoot the CCR package.

Note: Only users having these keys can access the records of the ROR REGISTRY RECORD (#798), ROR REGISTRY PARAMETERS (#798.1), ROR PATIENT (#798.4), ROR LOG (#798.7), ROR TASK (#798.8), and ROR HIV RECORD (#799.4) files via FileMan.

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Appendix A. Creating an Output Directory in Windows

GUI

1. Double-click the **My Computer** icon on the desktop.
2. Choose a drive, then right-click the drive icon and select **Properties** from the pop-up menu.
3. Make sure that the drive has enough free space for the new directory (about 500Mb), then click **Cancel** to close the Properties window.
4. Double-click the drive icon.
5. From the **File** menu, select **New** | **Folder**, then type **RORHDT** over the **New Folder** name.
6. Press **Enter**.
7. Close the window.

Command Prompt

1. Select **All Programs** from the **Start** menu.
2. From the **Accessories** submenu, select **Command Prompt**.

   The Command Prompt window opens. In most cases, the current drive will be C: and you will see the **C:\>** prompt. To create the directory on a different drive, type the letter of the drive followed by a colon, then press <**Enter>**.
3. At the prompt, type the **DIR** command to make sure that the drive has enough free space (about 500Mb). Look for the "nn,nnn,nnn bytes free" message at the end of the output.
4. Type **MKDIR** followed by a space and the name of directory **\RORHDT** and press <**Enter>.**
5. Type **DIR \RORHDT** and press **<Enter>** to make sure that the directory has been created.
6. Type **EXIT** and press <**Enter>** to close the window.

```
C:\>D:

D:\>DIR
 Volume in drive D is DATA
 Volume Serial Number is 924D-6524

 Directory of D:\

12/18/2001  10:48a      <DIR>          CacheSys
08/30/2001  01:37p      <DIR>          VISTA
               2 Dir(s)  16,823,896,064 bytes free
```

```
D:\>MKDIR \RORHDT

D:\>DIR \RORHDT
 Volume in drive D is DATA
 Volume Serial Number is 924D-6524

 Directory of D:\RORHDT

05/08/2002  09:32a      <DIR>          .
05/08/2002  09:32a      <DIR>          ..
               0 File(s)              0 bytes
               2 Dir(s)  16,823,896,064 bytes free

D:\>EXIT
```

Appendix B. Using the Windows FTP Client

Use these steps to transmit the data using the Windows NT/2000/XP FTP client (see Windows documentation and/or online help for more details):

1. From the **Start** menu, select **Run…**
2. In the **Open:** field, enter **FTP** and click **OK.**

   The FTP client window opens and the **ftp>** prompt is displayed.
3. Enter the **OPEN** command with the IP address **10.168.97.208** as a parameter;
4. At the **Name (…):** prompt, enter your user name.
5. At the **Password:** prompt, enter your password. The characters of the password will not be displayed on the screen.
6. Use the **BIN** command to change the transfer mode to binary, then initiate transfer of historical data files (*.HDT) from the output directory using the **MPUT** command:

   FTP> **MPUT** *{disk and directory name}****.HDT**
7. Confirm transmission of each file by pressing **<Enter>**.
8. Use the **QUIT** command to disconnect and exit the FTP client.

The following screen capture shows a typical Windows FTP session:

```
ftp> OPEN 10.168.97.208
Connected to 10.168.97.208.
220 Palo Alto CQM0 Server
User (10.168.97.208): {your username}
331 Please specify the password.
Password: {your password}
230 Login successful.
ftp> BIN
200 Switching to Binary mode.
ftp> MPUT D:\RORHDT\*.HDT
mput d:\rorhdt\ROR-605-01.HDT? <RET>
200 PORT command successful. Consider using PASV.
150 Ok to send data.
226 File receive OK.
ftp: 93003 bytes sent in 0.84Seconds 110.59Kbytes/sec.
mput d:\rorhdt\ROR-605-02.HDT? <RET>
200 PORT command successful. Consider using PASV.
150 Ok to send data.
226 File receive OK.
ftp: 91391 bytes sent in 0.98Seconds 93.25Kbytes/sec.
ftp> QUIT
```

Note: If you need to transmit or retransmit a single file, use the PUT command:

ftp> **PUT** {disk and directory name}\{file name}

Example:

ftp> **PUT** D:\RORHDT\ ROR-605-01.HDT

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Appendix C. HL7 Message Definitions

The CCR package sends patient data to the national registry as HL7 batch messages of CSU type. Each patient will be transmitted as an individual CSU message within the batch message.

Typographic Conventions

- The HL7 segments in the table are color-coded according to their purpose:
  - HL7 structure segments are highlighted with purple (BHS, MSH, and BTS).
  - Patient demographic data segments are highlighted with green (PID, ZSP, and ZRD).
  - Patient's clinical data (registry-independent) segments are highlighted in blue (OBR, OBX, ORC, and RXE).
  - Patient's registry-specific data segments are highlighted in yellow (CSP, CSS, OBR, and OBX).
- Square brackets denote optional segments (groups of segments).
- Curly brackets denote repeatable segments (groups of segments).

CSU – Clinical Trials Message (Event type C09)

The function of this message is to pass information relating to patients on the locally identified registries to a centralized database. The message includes patient demographics; registry information; and relevant clinical data.

Normalized Structure of the CSU Message

Segment ID	Description	Comments
BHS {	Batch Header	
MSH {	Message Header	
PID	Patient Identification	Patient Demographics
[ZSP]	Service Period	
[{ ZRD }]	Rated Disabilities	
[{ PV1 }]	Patient visit	Admissions/Outpatient data
CSR [{	Clinical Study Registration	Clinical Case Registry data
CSP {	Clinical Study Phase	
[{		
OBR	Observation Request	Inpatient/Outpatient, Radiology, Autopsy, Surgical Pathology, Cytopathology, Microbiology, Medical Procedures (EKG), Allergy, IV, Vitals, Problem List, and Laboratory data
{ OBX }	Observation/Result	
}] [{		
ORC	Common Order	Pharmacy/Drug data
{ RXE }	Pharmacy/Treatment Encoded Order	
}]		
}		
}]		
}		
} BTS	Batch Trailer	

Expanded Structure of the CSU Message

Segment ID	Description	Comments
BHS	Batch Header	
MSH {	Message Header	
PID	Pseudo-patient Identification	**Registry State** This group of segments is sent for each registry included in the data transmission.
CSR	Clinical Study Registration	
}		
[{		
MSH [	Message Header	
PID	Patient Identification	**Patient's Demographic and Clinical Data** This group of segments is sent only if the corresponding data has been modified/added since the last data transmission.
[ZSP]	Service Period	
[{ ZRD }]	Rated Disabilities	
[{ PV1 }]	Patient visit	
CSR	Clinical Study Registration	
[{		
OBR	Observation Request	
{ OBX }	Observation/Result	
}] [{		
ORC	Common Order	
{ RXE }	Pharmacy/Treatment Encoded Order	
}]		
] [{		
PID	Patient Identification	**Patient's Registry Data** This group of segments contains the patient's registry data. It is sent for each registry included in the transmission if the patient belongs to that registry.
CSR	Clinical Study Registration	
{ CSP }	Clinical Study Phase	
}]		
}] BTS	Batch Trailer	

Sample CSU Message

```
BHS|^~\&|ROR SITE|640^PALO-ALTO.MED.VA.GOV^DNS|ROR AAC|
|20050303020252-0800||^P^CSU~C09^2.4^AL^NE||64038648827|

MSH|^~\&|ROR SITE||||||CSU^C09^CSU_C09|640105760888-1
|P|2.4|||AL|NE|USA
PID|1||0^^^^U||PSEUDO^PATIENT
CSR|VA HEPC^1.5||640^PALO ALTO HCS^99VA4|0^^^^U^3^20
PID|1||0^^^^U||PSEUDO^PATIENT
CSR|VA HIV^1.5||640^PALO ALTO HCS^99VA4|0^^^^U^0^101

MSH|^~\&|ROR SITE||||||CSU^C09^CSU_C09|640105760888-2
|P|2.4|||AL|NE|US
PID|1||1243567890V123456^^^USVHA&&0363^NI^VA FACILITY
ID&640&L~325500^^^USVHA&&0363^PI^VA FACILITY ID&640&L||||19630408|M||2106-3-
SLF^WHITE^0005^2106-3^WHITE^CDC|^^^^95123|||||||00007600044| ||2186-5-
SLF^NOT HISPANIC OR LATINO^0189^2186-5^NOT HISPANIC OR LATINO^CDC|||||||""
ZSP|1|1|30|8|""|0|0|19700325
ZRD|1|7709^HODGKINS DISEASE|100|1
PV1|1|O|640^^^^^408|P|||10935^^^^^^^^^^^PHYSICIAN||||||||||
|8710273|||||||||||||||||||||||200403020815-0800||||||0
CSR|CCR^1.5||640^PALO ALTO HCS^99VA4|325500^^^USVHA^PI
OBR|1||45353453|OP^Oupatient^C4|||1997040593-000600||||||||||
|||||PHY|||||||||||||||||||499^HINES OIFO^99VA4
OBR|2||110120021658|93000^ELECTROCARDIOGRAM^C4||199504151100-
0600|199505161100-0600|||||||||||||||EC|F|||||||||||||||||
|612GF^MARTINEZ OPC/CREC^99VA4
OBX|1|FT|INT^Interpretation^VA080|CHANGES OR SERIAL|RECOMMEND CLINICAL
CORRELATION||||||F
OBX|2|FT|AUTO^Auto Instrument^VA080||This is the Auto-Instrument Diagnosis,
which is a free text word processing field
OBR|3||2050600309|81129.0000^Hepatic Function Panel^99VA64||
|20050301101656-0800||||A|^||20050301101656-
0800|SER&SER/PLAS&HL7&SER/PLAS&SER/PLAS&LN|30890||||87712\S\CH\S\6949697.8983
44||20050301111748-0800||LAB|
OBX|3||777-3^PLATELETS:NCNC:PT:BLD:QN:AUTOMATED COUNT^LN
^85570.0000^Platelet Count Whole Blood^99VA64||3.6|g/dL|3.3-
4.8||||F||2|20020129082501-0700|612GF^MARTINEZ O PC/CREC^99VA4
|617-VA612GF^
OBX|4||LABC|LCOMM|Lab Comments go here||||||F
PID|2||1243567890V123456^^^USVHA&&0363^NI^VA FACILITY
ID&640&L~325500^^^USVHA&&0363^PI^VA FACILITY ID&640&L||||19630408|M||2106-3-
SLF^WHITE^0005^2106-3^WHITE^CDC|^^^^95123|||||||00007600044| ||2186-5-
SLF^NOT HISPANIC OR LATINO^0189^2186-5^NOT HISPANIC OR LATINO^CDC|||||||""
CSR|VA HEPC^1.5||640^PALO ALTO HCS^99VA4
|325500^^^USVHA^PI||20040328||||7^Automatically Added -
ICD9^99VA799_1||0^NO~1^YES~1^YES~0^NO~0^NO~0^NO~0^NO~0
^NO~0^NO~0^NO~0^NO~0^NO~9^UNKNOWN
CSP|0^UPDATE|20050225020252-0800|20050226020252-0800
CSP|1^SELECT|200502241415-0800

BTS|2
```

ACK – Commit Acknowledgement Message

The CCR uses original HL7 acknowledgment rules. The responding application is required to send only a commit acknowledgment when the message is received and safely stored.

Structure of the Message

Segment ID	Description	OPT	RP	Comments
BHS	Batch Header	R		
MSA	Message Acknowledgment	R		
BTS	Batch Trailer	R		

Sample ACK Message

```
BHS|^~\&|ROR AAC||ROR SITE||20050303020500||^^ACK^2.4
|CA|23423423423|64038648827
MSA|CA|64038648827
BTS|1
```

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Appendix D. HL7 Segment Definitions

Typographic Conventions

Notation	Description	Example
Bold	Literal	**DNS**
<…>	Name that represents the corresponding value	<Race Code>
[…]	Optional element(s)	[ss]
|	Or	**+|-**
DD	Day (1-31)	05
MM	Month (1-12)	10
N	Digit (0-9)	
YY	2-digit year	05
YYYY	4-digit year	2005
Hh	Hours (0-23)	15
Mm	Minutes (0-59)	05
Ss	Seconds (0-59)	43
Zzzz	Time zone	0600
Blue	Hyperlink. You can click on it to view the corresponding definition and/or description.	See Examples
N/A	Field, component, or sub-component is not used by the package. Usually, it is empty but might have a value, which will be ignored.	
Example vs. Value	Description of an element contains either the Example or the Value row. In the latter case, the element always has the provided value.	

Examples:

Format	Valid Values
<Station Number>**^**<Station Name>**^DNS**	`640^PALO-ALTO.MED.VA.GOV^DNS`

YYYYMMDD[hhmm[ss]] [**+**|**-**zzzz]	`20050303020252-0800`
	`20050303020252`
	`200503030202+0600`
	`200503030202`
	`20050303`

BHS – Batch Header Segment

SEQ	LEN	DT	OPT	RP/#	TBL#	Field Name	CCR
1	1	ST	R			Batch Field Separator	See Notes
2	4	ST	R			Batch Encoding Characters	See Notes
3	15	ST	R			Batch Sending Application	See Notes
4	72	ST	R			Batch Sending Facility	See Notes
5	15	ST	R			Batch Receiving Application	See Notes
6	20	ST	O			Batch Receiving Facility	N/A
7	26	TS	R			Batch Creation Date/Time	See Notes
8	40	ST	O			Batch Security	N/A
9	23	ST	R			Batch Name/ID/Type	See Notes
10	80	ST	C			Batch Comment	See Notes
11	20	ST	R			Batch Control ID	See Notes
12	20	ST	C			Reference Batch Control ID	See Notes

Field Definitions

BHS-1 Batch Field Separator

Definition: This field contains the separator between the segment ID and the first real field, *BHS-2 Batch Encoding Characters*. As such it serves as the separator and defines the character to be used as a separator for the rest of the message.

Value: **|** (ASCII 124)

BHS-2 Batch Encoding Characters

Definition: This field contains four characters in the following order: the component separator; repetition separator; escape character; and subcomponent separator.

Value: **^~\&** (ASCII 94, 126, 92, and 38, respectively)

BHS-3 Batch Sending Application

Definition: This field uniquely identifies the sending application among all other applications within the network enterprise. The network enterprise consists of all those applications that participate in the exchange of HL7 messages within the enterprise. Entirely site-defined.

Value:
- ACK: **ROR AAC**
- CSU: **ROR SITE**

BHS-4 Batch Sending Facility

SEQ	DT	TBL#	Component Name	CCR
1	IS	0362	Namespace ID	Station Number
2	ST		Universal ID	Station Domain Name
3	ID	0301	Universal ID Type	**DNS**

Definition: This field contains the address of one of several occurrences of the same application within the sending system. Entirely site-defined.

Example: `640^PALO-ALTO.MED.VA.GOV^DNS`

BHS-5 Batch Receiving Application

Definition: This field uniquely identifies the receiving application among all other applications within the network enterprise. The network enterprise consists of all those applications that participate in the exchange of HL7 messages within the enterprise. Entirely site-defined.

Value:
- ACK: **`ROR SITE`**
- CSU: **`ROR AAC`**

BHS-7 Batch Creation Date/Time

Definition: This field contains the date/time that the sending system created the message. If the time zone is specified, it will be used throughout the message as the default time zone.

Format: YYYYMMDD[hhmm[ss]] [**+**|**-**zzzz]

Example: `20050303020252-0800`

BHS-9 Batch Name/ID/Type

SEQ	DT	TBL#	Component Name	CCR
1	ID			N/A
2	ID	0103	Processing ID	
3	ID		<Message Type>~<Trigger Event>	
4	ID	0104	Version ID	**`2.4`**
5	ID	0155	Accept ACK Type	
6	ID	0155	Application ACK Type	

Definition: This field contains the *Processing ID*, *Message Type*, *Trigger Event*, and several other characteristics of the message. The CCR package sends a CSU message type with the trigger event C09.

The CCR package always requests the commit acknowledgement but it does not require the application acknowledgement.

Example:
- ACK: `^P^ACK^2.4`
- CSU: `^P^CSU~C09^2.4^AL^NE`

BHS-10 Batch Comment

Definition: This field is a comment field that is not further defined in the HL7 protocol.

Example:
- ACK: **`CA`**
- Historical CSU: **`HISTORICAL DATA`**
- Nightly CSU: N/A

BHS-11 Batch Control ID

Definition: This field is used to uniquely identify a particular batch. It is echoed back in the *BHS-12 Reference Batch Control ID* field of the commit acknowledgement.

Example: `64038648827`

BHS-12 Reference Batch Control ID

Definition: This field contains the value of *BHS-11 Batch Control ID* when this batch was originally transmitted.

- CSU: N/A
- ACK: Value of *BHS-11 Batch Control ID* from the original CSU batch.

Example: `64038648827`

Sample BHS Segments

ACK

```
BHS|^~\&|ROR AAC||ROR SITE||20050303020500||^^ACK^2.4
|CA|23423423423|64040054123
```

CSU

```
BHS|^~\&|ROR SITE|640^PALO-ALTO.MED.VA.GOV^DNS|ROR AAC|
|20050303020252-0800||^P^CSU~C09^2.4^AL^NE||64038648827|
```

BTS – Batch Trailer Segment

SEQ	LEN	DT	OPT	RP/#	TBL#	Field Name	CCR
1	10	ST	R			Batch Message Count	See Notes
2	80	ST	O			Batch Comment	N/A
3	100	NM	O	Y		Batch Totals	N/A

Field Definitions

BTS-1 Batch Message Count

Definition: This field stores the count of individual messages contained within the batch.

Example: 235

Sample BTS Segment

BTS | 235

CSP – Clinical Study Phase Segment

SEQ	LEN	DT	OPT	RP/#	TBL#	Field Name	CCR
1	30	CE	R			Study Phase Identifier	See Notes
2	26	TS	R			Date/time Study Phase Began	See Notes
3	26	TS	C			Date/time Study Phase Ended	See Notes
4	250	CE	C			Study Phase Evaluability	N/A

The CSP segments represent different registry-specific events, store the corresponding dates, and/or group the subsequent segments.

If a segment with a particular value of the *CSP-1 Study Phase ID* field is not present in the message, then the corresponding values in the national database should not be changed.

Field Definitions

CSP-1 Study Phase ID

SEQ	DT	TBL#	Component Name	CCR
1	ST		Identifier	Registry Event Code
2	ST		Text	Registry Event Name
3	ST		Name of Coding System	N/A
4	ST		Alternate Identifier	N/A
5	ST		Alternate Text	N/A
6	ST		Name of Alternate Coding System	N/A

Definition: This field indicates type of the registry-specific event represented by the CSP segment.

Tables:

Identifier	Text
0	UPDATE
1	SELECT
2	ADD
3	CONFIRM
4	DELETE
5	CDC

Example: `0^UPDATE`

CSP-2 Date/time Study Phase Began

Definition: Meaning of this field depends on the value of the *CSP-1 Study Phase ID* field:

- UPDATE: Start date/time of the data extraction
- SELECT: Date/time of the earliest selection rule
- ADD: Date/time when the patient was added to the registry (in pending state)
- CONFIRM: Date/time when the patient was confirmed in the registry
- DELETE: Date/time when the patient was deleted from the registry
- CDC: Date/time of CDC data modification

Format: YYYYMMDD[hhmm[ss]] [+|-zzzz]

Example: `200502100920-0800`

CSP-3 Date/time Study Phase Ended

Definition: Meaning of this field depends on the value of the *CSP-1 Study Phase ID* field:

- UPDATE: End date/time of the data extraction
- Otherwise: N/A

Format: YYYYMMDD[hhmm[ss]] [+|-zzzz]

Example: `200502101015-0800`

Sample CSP segment

```
CSP|0^UPDATE|20010806010000-0600|20010806015030-0600
```

CSR – Clinical Study Registration Segment

SEQ	LEN	DT	OPT	RP/#	TBL#	Field Name	CCR
1	60	EI	R			Sponsor Study ID	See Notes
2	60	EI	O			Alternate Study ID	N/A
3	250	CE	R			Institution Registering the Patient	See Notes
4	30	CX	R			Sponsor Patient ID	See Notes
5	30	CX	O			Alternate Patient ID - CSR	N/A
6	26	TS	C			Date/Time Of Patient Study Registration	See Notes
7	250	XCN	O	Y		Person Performing Study Registration	N/A
8	250	XCN	C	Y		Study Authorizing Provider	N/A
9	26	TS	C			Date/time Patient Study Consent Signed	See Notes
10	250	CE	C			Patient Study Eligibility Status	See Notes
11	26	TS	O	Y/3		Study Randomization Date/time	N/A
12	250	CE	C	Y		Randomized Study Arm	See Notes
13	250	CE	O	Y/3		Stratum for Study Randomization	N/A
14	250	CE	C			Patient Evaluability Status	N/A
15	26	TS	C			Date/time Ended Study	N/A
16	250	CE	C			Reason Ended Study	N/A

Field Definitions

CSR-1 Sponsor Study ID

SEQ	DT	TBL#	Component Name	CCR
1	ST		Entity Identifier	Registry Name
2	IS		Namespace ID	Software Version Information
3	ST		Universal ID	N/A
4	ID		Universal ID Type	N/A

Definition: This field holds the internal registry name, the version number, and the build number of the CCR software.

- Clinical Data: **CCR^**<Version Major>**.**<Version Minor>[**.**<Latest Patch Number>[**.**<Build Number>]]
- Otherwise: <Registry Name>**^**<Version Major>**.**<Version Minor>[**.**<Latest Patch Number>[**.**<Build Number>]]

Examples:

- Clinical Data: `CCR^1.5.2.1`
- Otherwise: `VA HIV^1.5.2.1`

CSR-3 Institution Registering the Patient

SEQ	DT	TBL#	Component Name	CCR
1	ST	0005	Identifier	Station Number (without suffix)
2	ST		Text	Institution Name
3	ST		Name of Coding System	**99VA4**
4	ST		Alternate Identifier	N/A
5	ST		Alternate Text	N/A
6	ST		Name of Alternate Coding System	N/A

Definition: This field distinguishes the station where the local registry is held.

Example: `640^PALO ALTO HCS^99VA4`

CSR-4 Sponsor Patient ID

SEQ	DT	TBL#	Component Name	CCR
1	ST		ID	Patient IEN (DFN)
2	ST		Check Digit	
3	ID	0061	Code of the Check Digit Scheme	
4	HD	0363	Assigning Authority	
5	ID	0203	Identifier Type Code	
6	HD		Assigning Facility	Number of pending patients
7	DT		Effective Date	Number of reports that have been run since the last transmission
8	DT		Expiration Date	N/A

Definition:

- Clinical Data: Both patient's clinical and patient's registry CSR segments contain the Internal Entry Number (DFN) of the patient's record at the sending facility in this field:
  <DFN>**^^^USVHA^PI**
- Registry Data: See Clinical Data
- Registry State: CSR segments in the Registry State section of the batch utilize the following format of this field:
  0^^^^U^<Number of Pending Patients>**^**<Number of Reports>

Examples: `15^^^USVHA^PI`

`0^^^^U^3^20`

CSR-6 Date/time of Patient Study Registration

Definition:

- Clinical Data: N/A
- Registry Data: Date when the patient was added to the registry (in pending state)
- Registry State: N/A

Format: YYYYMMDD

Example: `20050210`

CSR-9 Date/time Patient Study Consent Signed

Definition:
- Clinical Data: N/A
- Registry Data: Date of the AIDS OI (Clinical AIDS) is sent in this field if the corresponding check-box is selected on the Patient Edit dialog box.
- Registry State: N/A

Format: YYYYMMDD

Example: `20050210`

CSR-10 Patient Study Eligibility Status

SEQ	DT	TBL#	Component Name	CCR
1	ST	0005	Identifier	Code
2	ST		Text	Description
3	ST		Name of Coding System	**99VA799_1**
4	ST		Alternate Identifier	N/A
5	ST		Alternate Text	N/A
6	ST		Name of Alternate Coding System	N/A

Definition:
- Clinical Data: N/A
- Registry Data: Reason for addition of the patient to the registry
- Registry State: N/A

Tables:

Code	Description
7	Automatically Added - ICD9
8	Automatically Added - Lab
9	Automatically Added - ICD9 and Lab

Example: `7^Automatically Added - ICD9^ 99VA799_1`

CSR-12 Randomized Study Arm

SEQ	DT	TBL#	Component Name	CCR
1	ST	0005	Identifier	Code
2	ST		Text	Description
3	ST		Name of Coding System	N/A
4	ST		Alternate Identifier	N/A
5	ST		Alternate Text	N/A
6	ST		Name of Alternate Coding System	N/A

Definition:
- Clinical Data: N/A
- Registry Data: Risk factors. Number of repetitions is registry-specific.
- Registry State: N/A

Tables:

Code	Description
0	NO
1	YES
9	UNKNOWN

Example: `0^NO~1^YES~1^YES~0^NO~0^NO~0^NO~0^NO~0^NO~0^NO~0^NO~0^NO~0^NO~0^NO~9^UNKNOWN`

Sample CSR segment

```
CSR|VA HEPC^1.5||640^PALO ALTO HCS^99VA4|325500^^^USVHA^PI|
|20040328|||20050210|7^Automatically Added - ICD9^99VA7991|
|0^NO~1^YES~1^YES~0^NO~0^NO~0^NO~0^NO~0^NO~0^NO~0^NO~0^NO~0^NO~9^UNKNOWN
```

MSA – Message Acknowledgment Segment

SEQ	LEN	DT	OPT	RP/#	TBL#	Field Name	CCR
1	2	ID	R		0008	Acknowledgment Code	See Notes
2	20	ST	R			Message Control ID	See Notes
3	80	ST	O			Text Message	See Notes
4	15	NM	O			Expected Sequence Number	N/A
5	1	ID	B		0102	Delayed Acknowledgment Type	N/A
6	250	CE	O		0357	Error Condition	N/A

Field Definitions

MSA-1 Acknowledgment Code

Definition: This field holds the acknowledgment code, which defines whether the message was accepted or rejected.

Example: `CA`

MSA-2 Message Control ID

Definition: This field contains the message control ID of the message sent by the sending system. This allows the sending system to associate the response with the original message.

Example: `64038648827`

MSA-3 Text Message

Definition: This field will describe an error condition in the event of an AE or AR being returned.

Example:

Sample MSA Segment

```
MSA|CA|64038648827
```

MSH – Message Header Segment

SEQ	LEN	DT	OPT	RP/#	TBL#	Field Name	CCR
1	1	ST	R			Field Separator	See Notes
2	4	ST	R			Encoding Characters	See Notes
3	180	HD	O		0361	Sending Application	See Notes
4	180	HD	O		0362	Sending Facility	N/A
5	180	HD	O		0361	Receiving Application	N/A
6	180	HD	O		0362	Receiving Facility	N/A
7	26	TS	R			Date/Time Of Message	N/A
8	40	ST	O			Security	N/A
9	15	CM	R		0076/ 0003	Message Type	See Notes
10	20	ST	R			Message Control ID	See Notes
11	3	PT	R			Processing ID	See Notes
12	60	VID	R		0104	Version ID	See Notes
13	15	NM	O			Sequence Number	N/A
14	180	ST	O			Continuation Pointer	N/A
15	2	ID	O		0155	Accept Acknowledgment Type	See Notes
16	2	ID	O		0155	Application Acknowledgment Type	See Notes
17	3	ID	O		0399	Country Code	See Notes
18	16	ID	O	Y	0211	Character Set	N/A
19	250	CE	O			Principal Language Of Message	N/A
20	20	ID	O		0356	Alternate Character Set Handling Scheme	N/A
21	10	ID	O	Y	0449	Conformance Statement ID	N/A

Field Definitions

MSH-1 Field Separator

Definition: This field contains the separator between the segment ID and the first real field, *MSH-2 Encoding Characters*. As such it serves as the separator and defines the character to be used as a separator for the rest of the message.

Value: **|** (ASCII 124)

MSH-2 Encoding Characters

Definition: This field contains the four characters in the following order: the component separator; repetition separator; escape character; and subcomponent separator.

Value: **^~\&** (ASCII 94, 126, 92, and 38, respectively)

MSH-3 Sending Application

Definition: This field uniquely identifies the sending application among all other applications within the network enterprise. The network enterprise consists of all those applications that participate in the exchange of HL7 messages within the enterprise. Entirely site defined.

Value: **ROR SITE**

MSH-9 Message Type

SEQ	DT	TBL#	Component Name	CCR
1	ID	0076	Message Type	**CSU**
2	ID	0003	Trigger Event	**C09**
3	ID	0354	Message Structure	**CSU_C09**

Definition: This field contains the message type and trigger event for the message. The CCR package sends a CSU message type with the trigger event C09.

Value: **CSU^C09^CSU_C09**

MSH-10 Message Control ID

Definition: This field contains a number or other identifier that uniquely identifies the message. The receiving system echoes this ID back to the sending system in the Message Acknowledgment segment (MSA).

Example: `640105354833-1`

MSH-11 Processing ID

SEQ	DT	TBL#	Component Name	CCR
1	ID	0103	Processing ID	
2	ID	0207	Processing Mode	N/A

Definition: This field identifies the current status of the interface, the component is used to indicate if the area and circumstances of the transmission.

The AAC should not file training or debugging data into their production database.

Example: P

MSH-12 Version ID

Definition: This field is matched by the receiving system to its own HL7 version to be sure the message will be interpreted correctly.

Value: **2.4**

MSH-15 Accept Acknowledgment Type

Definition: This field defines whether the sending system requires an acknowledgment from the receiving system when a message is accepted. The CCCR package always requests the accept (commit) acknowledgment.

Value: **AL**

MSH-16 Application Acknowledgment Type

Definition: This field defines whether the sending system requires an acknowledgment from the receiving system when a message has been validated by the application. The CCR package does not use application acknowledgments.

Value: **NE**

MSH-17 Country Code

Definition: This field contains the country of origin for the message.

Value: **USA**

Sample MSH Segment

```
MSH|^~\&|ROR SITE||||||CSU^C09^CSU_C09|640105760888-2|P|2.4||
||AL|NE|USA
```

OBR – Observation Request

SEQ	LEN	DT	OPT	RP/#	TBL#	Field Name	CCR
1	4	SI	O			Set ID - OBR	See Notes
2	22	EI	C			Placer Order Number	N/A
3	22	EI	C			Filler Order Number	See Notes
4	250	CE	R			Universal Service Identifier	See Notes
5	2	ID	X			Priority - OBR	N/A
6	26	TS	X			Requested Date/Time	See Notes
7	26	TS	C			Observation Date/Time	See Notes
8	26	TS	O			Observation End Date/Time	See Notes
9	20	CQ	O			Collection Volume	N/A
10	250	XCN	O	Y		Collector Identifier	N/A
11	1	ID	O		0065	Specimen Action Code	See Notes
12	250	CE	O			Danger Code	See Notes
13	300	ST	O			Relevant Clinical Info.	See Notes
14	26	TS	C			Specimen Received Date/Time	See Notes
15	300	CM	O		0070	Specimen Source	See Notes
16	250	XCN	O	Y		Ordering Provider	See Notes
17	250	XTN	O	Y/2		Order Callback Phone Number	N/A
18	60	ST	O			Placer Field 1	See Notes
19	60	ST	O			Placer Field 2	N/A
20	60	ST	O			Filler Field 1	See Notes
21	60	ST	O			Filler Field 2	See Notes
22	26	TS	C			Results Rpt/Status Chng - Date/Time	See Notes
23	40	CM	O			Charge to Practice	N/A
24	10	ID	O		0074	Diagnostic Serv Sect ID	See Notes
25	1	ID	C		0123	Result Status	See Notes
26	400	CM	O			Parent Result	See Notes
27	200	TQ	O	Y		Quantity/Timing	N/A
28	250	XCN	O	Y/5		Result Copies To	N/A
29	200	CM	O			Parent	See Notes
30	20	ID	O		0124	Transportation Mode	N/A
31	250	CE	O	Y		Reason for Study	N/A
32	200	CM	O			Principal Result Interpreter	N/A
33	200	CM	O	Y		Assistant Result Interpreter	N/A

SEQ	LEN	DT	OPT	RP/#	TBL#	Field Name	CCR
34	200	CM	O	Y		Technician	N/A
35	200	CM	O	Y		Transcriptionist	N/A
36	26	TS	O			Scheduled Date/Time	N/A
37	4	NM	O			Number of Sample Containers	N/A
38	250	CE	O	Y		Transport Logistics of Collected Sample	N/A
39	250	CE	O	Y		Collector's Comment	N/A
40	250	CE	O			Transport Arrangement Responsibility	See Notes
41	30	ID	O		0224	Transport Arranged	N/A
42	1	ID	O		0225	Escort Required	N/A
43	250	CE	O	Y		Planned Patient Transport Comment	N/A
44	250	CE	O		0088	Procedure Code	See Notes
45	250	CE	O	Y	0340	Procedure Code Modifier	N/A
46	250	CE	O	Y	0411	Placer Supplemental Service Information	See Notes
47	250	CE	O	Y	0411	Filler Supplemental Service Information	N/A

Field Definitions

OBR-1 Set ID – OBR

Definition: This field contains the number that identifies this transaction. For the first occurrence of the segment, the sequence number shall be one, for the second occurrence, the sequence number shall be two, etc.

Example: 2

OBR-3 Filler Order Number

SEQ	DT	TBL#	Component Name	CCR
1	ST		Entity Identifier	
2	IS		Namespace ID	
3	ST		Universal ID	
4	ID		Universal ID Type	

Definition: This field identifies an order uniquely among all orders from the ordering application.

- Allergy: IEN in the PATIENT ALLERGIES file (#120.8)
- Autopsy: Accession Number
- Cytopathology: Accession Number
- Inpatient: IEN in the PTF file (#45)
- IV: Order Number
- Laboratory data: Accession Number (Host UID)
- Med. Proc. (EKG): IEN in the ELECTROCARDIOGRAM (EKG) file (#691.5)
- Microbiology: Accession Number
- Outpatient: IEN in the VISIT file (#9000010)

- Problem List: IEN in the INSTITUTION file (#4) concatenated with the Problem Number (values of the .06 and .07 fields of the PROBLEM file (# 9000011) accordingly). The number can have decimal places.
- Radiology: Case Number
- Surgical Pathology: Accession Number

Example:
- Allergy: `123`
- Autopsy: `AU 02 462820`
- Cytopathology: `CY 02 345`
- Inpatient: `2945`
- Outpatient: `904726`
- IV: `123431345`
- Laboratory data: `CH 02 1234`
- Med. Proc. (EKG): `110120021658`
- Microbiology: `324MI33221`
- Problem List: `24452.11`
- Radiology: `6989273.8975-1^072601-1445`
- Surgical Pathology: `SP 95 345`

OBR-4 Universal Service ID

SEQ	DT	TBL#	Component Name	CCR
1	ST	0005	Identifier	
2	ST		Text	
3	ST		Name of Coding System	
4	ST		Alternate Identifier	
5	ST		Alternate Text	
6	ST		Name of Alternate Coding System	

Definition: This field contains the identifier code for the requested observation/test.

- Allergy: Generic Hard-coded CPT-4 Code
- Autopsy: Generic Hard-coded CPT-4 Code
- Cytopathology: Generic Hard-coded CPT-4 Code
- Inpatient: **`IP^Inpatient^C4`**
- IV: Generic Hard-coded CPT-4 Code
- Laboratory data: NLT Code and Test Name
- Med. Proc. (EKG): Generic Hard-coded CPT-4 Code
- Microbiology: Generic Hard-coded CPT-4 Code
- Outpatient: **`OP^Outpatient^C4`**
- Problem List: Generic Hard-coded CPT-4 Code
- Radiology: The Procedure Name will appear in the text part of this segment and the identifier will be the CPT code that relates to the procedure name.
- Surgical Pathology: Generic Hard-coded CPT-4 Code
- Vitals: Generic Hard-coded CPT-4 Code

Distinguishing between records for Allergy, IV, Medical Procedures, Lab, Radiology, Autopsy, Surgical and Cytopathology results can be done by a combination of OBR-4 and OBR-24.

Example:
- Laboratory data: `83020.0000^Hemoglobin^99VA64`
- Radiology: `71020^CHEST X-RAY^C4^58^CHEST PA\T\LAT^99RAP`

Value:
- Allergy: **95000^ALLERGY^C4**
- Autopsy: **88099^UNLISTED NECROPSY PROC^C4**
- Cytopathology: **88108^CYTOPATHOLOGY, CONCENT^C4**
- Inpatient: **IP^Inpatient^C4**
- IV: **90780^IV^C4**
- Med. Proc. (EKG): **93000^ELECTROCARDIOGRAM^C4**
- Microbiology: **87999^MICROBIOLOGY^C4**
- Outpatient: **OP^Outpatient^C4**
- Problem List: **90125^HOSPITAL CARE,NEW, INTERMED.^C4**
- Surgical Pathology: **88300^LEVEL I - SURGICAL PAT^C4**
- Vitals: **94150^VITAL CAPACITY TEST^C4**

OBR-6 Requested Date/Time

Definition: This field is populated in the following segments only:

- Med. Proc. (EKG): Date/Time of the EKG
- Problem List: Date/Time when the problem was entered into the PROBLEM file (#9000011)

Format: YYYYMMDD[hhmm[ss]] [**+**|**-**zzzz]

Example: `200502101015-0800`

OBR-7 Observation Date/Time

Definition:
- Allergy: Origination Date
- Autopsy: Autopsy Date
- Cytopathology: Exam Date
- Inpatient: Admission Date/Time
- IV: Start Date
- Laboratory data: Date/Time when the specimen was taken
- Med. Proc. (EKG): Date/Time of the last successful transfer through the automated interface (populated only if received from an instrument)
- Microbiology: Accession Date
- Outpatient: Visit Date/Time
- Problem List: Approximate date when the problem appeared
- Radiology: Exam Date/Time
- Surgical Pathology: Date/Time when the specimen was taken
- Vitals: N/A

Format: YYYYMMDD[hhmm[ss]] [**+**|**-**zzzz]

Example: `200502101015-0800`

OBR-8 Observation End Date/Time

Definition: This field is populated only in the following segments:

- Autopsy: Date of the final autopsy diagnoses
- IV: Stop Date
- Problem List: Date/Time when the problem was resolved or inactivated
- Surgical Pathology: Date/Time when the report was completed

Format: YYYYMMDD[hhmm[ss]] [+|-zzzz]

Example: `200502101015-0800`

OBR-11 Specimen Action Code

Definition: This field is populated only in the following segments:

- Laboratory Data: Specimen Action Code
- Microbiology: Indicates whether the urine screen is positive or negative.

Tables:

Value	Urine Screen
N	Negative
P	Positive

Example: P

OBR-12 Danger Code

SEQ	DT	TBL#	Component Name	CCR
1	ST	0005	Identifier	N/A
2	ST		Text	
3	ST		Name of Coding System	N/A
4	ST		Alternate Identifier	N/A
5	ST		Alternate Text	N/A
6	ST		Name of Alternate Coding System	N/A

Definition: This field is populated in the following segments only:

- Laboratory Data: Infection Warning (value of the PAT. INFO. field (#.091) of the LAB DATA file (#63))

Format: Free Text

OBR-13 Relevant Clinical Info.

Definition: This field is populated only in the following segments:

- Allergy: Reactant
- IV: Schedule
- Microbiology: Site/Specimen
- Problem List: Diagnosis Code (ICD-9)

Example:

- Allergy: ONION
- IV: ONCE
- Microbiology: PERITONEAL
- Problem List: 097.1

OBR-14 Specimen Received Date/Time

Definition: This field is populated only in the following segments:

- Laboratory Data: Collection Date/Time
- Problem List: Date when the problem was resolved or inactivated

Format: YYYYMMDD[hhmm[ss]] [+|-zzzz]

Example: `200502101015-0800`

OBR-15 Specimen Source

SEQ	DT	TBL#	Component Name	CCR
1	CE		Specimen Source	LOINC
2	TX		Additives	N/A
3	TX		Free Text	N/A
4	CE		Body Site	N/A
5	CE		Site Modifier	N/A
6	CE		Collection Modifier	N/A
7	CE		Specimen Role	N/A

Definition: This field is populated only in the following segments:

- Laboratory Data: Specimen Source

Example:
- Laboratory Data: `UR&Urine&HL70070&UR&Urine&LN`

OBR-16 Ordering Provider

SEQ	DT	TBL#	Component Name	CCR
1	ST		ID Number	IEN of the user in the NEW PERSON file (#200)
2	FN		Family Name	N/A
3	ST		Given Name	N/A
4	ST		Second and further given names or initials thereof	N/A
5	ST		Suffix (e.g., JR or III)	N/A
6	ST		Prefix (e.g., DR)	N/A
7	IS	0360	Degree (e.g., MD)	N/A
8	IS	0297	Source Table	N/A
9	HD		Assigning Authority	N/A
10	ID	0200	Name Type Code	N/A
11	ST		Identifier Check Digit	N/A
12	ID	0061	Code identifying the check digit scheme employed	N/A
13	IS		Identifier Type Code	Provider Class Name
14	HD		Assigning Facility	N/A

SEQ	DT	TBL#	Component Name	CCR
15	ID	0465	Name Representation Code	N/A
16	CE	0448	Name Context	N/A
17	DR		Name Validity Range	N/A
18	ID	0444	Name Assembly Order	N/A

Definition: This field identifies the individual who ordered the test. Provider name is not used to ensure the patient privacy protection.

Format:
- Allergy: <Provider IEN>^^^^^^^^^^^^<Provider Class Name>
- Autopsy: <Provider IEN>
- Cytopathology: N/A
- Inpatient: N/A
- IV: N/A
- Laboratory data: <Provider IEN>
- Med. Proc. (EKG): N/A
- Microbiology: N/A
- Outpatient: N/A
- Problem List: <Provider IEN>^^^^^^^^^^^^<Provider Class Name>
- Radiology: <Provider IEN>^^^^^^^^^^^^<Provider Class Name>
- Surgical Pathology: <Surgeon/Physician IEN>
- Vitals: N/A

Example: `2177^^^^^^^^^^^^PHYSICIAN`

OBR-18 Placer Field 1

Definition: This field is populated in the following segments only:

- Laboratory Data: Name of the Auto-instrument

Format: <Name of Analyzer or Instrument>^<Card Address>

OBR-20 Filler Field 1

Definition: This field is populated in the following segments only:

- Allergy: Allergy Type
- IV: Infusion Rate
- Laboratory Data: Reference to the node in the LAB DATA file (#63)
- Microbiology: Collection Sample
- Problem List: Condition of the Record

Format:
- Allergy: Text
- IV: Text
- Laboratory Data: <LRDFN>\S\<Subscript>\S\<Inverted D/T> (\S\ - encoded ^ character)
- Microbiology: <Name>
- Problem List: <Code>

Tables:

Code	Condition of the Problem Record
H	Hidden
P	Permanent
T	Transcribed

Example:

- Allergy: `FOOD`
- IV: `INFUSE OVER 30MIN`
- Laboratory Data: `42058\S\CH\S\6949770.89857`
- Microbiology: `FLD-PERITONEAL`
- Problem List: `P`

OBR-21 Filler Field 2

Definition: This field is populated in the following segments only:

- Microbiology: Sputum Screen

Format: Free Text

OBR-22 Results Rpt/Status Chng - Date/Time

Definition: This field is populated only in the following segments:

- Autopsy: Date/Time the report is released
- Laboratory Data: Date/Time the report is released
- Problem List: Date/Time Last Modified

Format: YYYYMMDD[hhmm[ss]] [**+**|**-**zzzz]

Example: `200502101015-0800`

OBR-24 Diagnostic Serv Sect ID

Definition: This field is the section of the diagnostic service where the observation was performed.

Value:

- Allergy: **TX**
- Autopsy: **SP**
- Cytopathology: **CP**
- Inpatient: **PHY**
- IV: **IMM**
- Laboratory data: **LAB**
- Med. Proc. (EKG): **EC**
- Microbiology: **MB**
- Outpatient: **PHY**
- Problem List: **TX**
- Radiology: **RAD**
- Surgical Pathology: **SP**
- Vitals: **EC**

OBR-25 Result Status

Definition: This field is populated in the following segments only:

- Allergy: Observed/Historical
- Med. Proc. (EKG): Confirmation Status
- Microbiology: Sterility Control
- Problem List: Status of the Problem

Tables:

Value	Allergy	Med. Proc. (EKG)	Microbiology	Problem Status
F	Observed	Confirmed	Positive	Active
R	Historical	Unconfirmed	Negative	Inactive

Example: F

OBR-26 Parent Result

SEQ	DT	TBL#	Component Name	CCR
1	CE		OBX-3 observation identifier of parent result	
2	ST		OBX-4 sub-ID of parent result	
3	TX		Part of OBX-5 observation result from parent	

Definition: This field is populated in the following segments only:

- Laboratory Data: The PARENT RESULT uniquely identifies the parent result's OBX segment related to this order.

OBR-29 Parent

SEQ	DT	TBL#	Component Name	CCR
1	EI		Parent's Placer Order Number	
2	EI		Parent's Filler Order Number	

Definition: This field is populated in the following segments only:

- Laboratory Data: This field relates a child to its parent when a parent-child relationship exists.

OBR-40 Transport Arrangement Responsibility

SEQ	DT	TBL#	Component Name	CCR
1	ST	0005	Identifier	
2	ST		Text	
3	ST		Name of Coding System	**VA**
4	ST		Alternate Identifier	N/A
5	ST		Alternate Text	N/A
6	ST		Name of Alternate Coding System	N/A

Definition: This field is populated in the following segments only:

- IV: Type

Tables:

Value	IV Type Text
A	Admixture
C	Chemotherapy
H	Hyperal
P	Piggyback
S	Syringe

Example:
- IV: `P^Piggyback^VA`

OBR-44 Procedure Code

SEQ	DT	TBL#	Component Name	CCR
1	ST	0005	Identifier	Station Number (without suffix)
2	ST		Text	Institution Name
3	ST		Name of Coding System	**99VA4**
4	ST		Alternate Identifier	N/A
5	ST		Alternate Text	N/A
6	ST		Name of Alternate Coding System	N/A

Definition: The OBR-44 holds the station/division that placed the order. This field is empty in the Allergy and Laboratory segments.

Example: `640^PALO ALTO HCS^99VA4`

OBR-46 Placer Supplemental Service Information

SEQ	DT	TBL#	Component Name	CCR
1	ST	0005	Identifier	
2	ST		Text	
3	ST		Name of Coding System	N/A
4	ST		Alternate Identifier	N/A
5	ST		Alternate Text	N/A
6	ST		Name of Alternate Coding System	N/A

Definition: This field is populated in the following segments only:

- Autopsy: Value of the SERVICE field (14.5) of the LAB DATA file (#63) in the following format: <Service Code>**^**<Service Name>.

Example:
- Autopsy: `S^SURGERY`

Sample OBR Segments

Allergy

```
OBR|1||AL 99 5|95000^ALLERGY^C4|||1995051611-000600||||||||
|8491^^^^^^^^^^^^STAFF PHYSICIAN||DF||||||TX|R
```

Autopsy

```
OBR|2||AU 99 5|88099^UNLISTED NECROPSY PROC^C4|||199505161100-
0600|199505200900-0600|||||||||||||||SP|||||||||||||||||||499^HINES
OIFO^99VA4||S^SURGERY
```

Cytopathology

```
OBR|3||AU 99 5|88108^CYTOPATHOLOGY, CONCENT^C4|||199505161100-
0600|||||||||||||||CP|||||||||||||||||499^HINES OIFO^99VA4
```

Inpatient

```
OBR|4||23443|OP^Oupatient^C4|||1997040593-000600|||||||||
||||||||PHY|||||||||||||||||||499^HINES OIFO^99VA4
```

IV

```
OBR|5||IV 99 5|90780^IV^C4|||1995051611-000600
|1996030312-000600|||||Schedule goes here – free text||||||
|Infusion Rate||||IMM|||||||||||||||P^Piggyback^VA^^^^|||
|499^HINES OIFO^99VA4
```

Laboratory data

```
OBR|6||2050600309|81129.0000^Hepatic Function Panel^99VA64||
|20050301101656-0800||||A|^||20050301101656-
0800|SER&SER/PLAS&HL7&SER/PLAS&SER/PLAS&LN|30890||||87712\S\CH\S\6949697.8983
44||20050301111748-0800||LAB
```

Med. Proc. (EKG)

```
OBR|7||110120021658|93000^ELECTROCARDIOGRAM^C4||199504151100-
0600|199505161100-0600|||||||||||||||EC|F|||||||||||||||||
|612GF^MARTINEZ OPC/CREC^99VA4
```

Microbiology

```
OBR|8||MI 99 5|87999^MICROBIOLOGY^C4|||1997040511-000600||||P
||BLOOD|||||||Sample type – free text|Sputum Screen – free
text|||MB|F|||||||||||||||||||499^HINES OIFO^99VA4
```

Outpatient

```
OBR|9||45353453|OP^Oupatient^C4|||1997040593-000600||||||||||||
|||||PHY|||||||||||||||||||499^HINES OIFO^99VA4
```

Problem List

```
OBR|1||640.016|90125^HOSPITAL CARE,NEW, INTERMED.^C4
||20050228|||||||293.83|||4532^^^^^^^^^^^^STAFF PHYSICIAN||||P
||20050228||TX|F|||||||||||||||||||499^HINES OIFO^99VA4
```

Radiology

```
OBR|2||6989798.8767-1^020101-1327^L|75736^ANGIO PELVIC SELECT OR SUPRASELECT
S&I^C4^288^ANGIO CAROTID CEREBRAL BILAT S\T\I^99RAP|||200102011232-
0600|||||||||2177^^^^^^^^^^^^^STAFF
RADIOLOGIST||||||||RAD||||||||||||||||||499^HINES OIFO^99VA4
```

Surgical Pathology

```
OBR|3||SP 99 5|88300^ LEVEL I – SURGICAL PAT^C4|||19990316
|199508021100-0600||||||||329||||||||SP||||||||||||||||||
|499^HINES OIFO^99VA4
```

Vitals

```
OBR|4|||94150^VITAL CAPACITY TEST^C4|||||||||||||||||||EC
||||||||||||||||||499^HINES OIFO^99VA4
```

OBX – Observation/Result Segment

SEQ	LEN	DT	OPT	RP/#	TBL#	Field Name	CCR
1	4	SI	O			Set ID - OBX	See Notes
2	2	ID	C		0125	Value Type	See Notes
3	250	CE	R			Observation Identifier	See Notes
4	20	ST	C			Observation Sub-ID	See Notes
5	65536	*	C	Y		Observation Value	See Notes
6	250	CE	O			Units	See Notes
7	60	ST	O			References Range	See Notes
8	5	IS	O	Y/5	0078	Abnormal Flags	See Notes
9	5	NM	O			Probability	N/A
10	2	ID	O	Y	0080	Nature of Abnormal Test	N/A
11	1	ID	R		0085	Observation Result Status	See Notes
12	26	TS	O			Date Last Observation Normal Value	See Notes
13	20	ST	O			User Defined Access Checks	See Notes
14	26	TS	O			Date/Time of the Observation	See Notes
15	250	CE	O			Producer's ID	See Notes
16	250	XCN	O	Y		Responsible Observer	See Notes
17	250	CE	O	Y		Observation Method	See Notes
18	22	EI	O	Y		Equipment Instance Identifier	N/A
19	26	TS	O			Date/Time of the Analysis	N/A

Field Definitions

OBX-1 Set ID – OBX

Definition: This field contains the number that identifies this transaction. For the first occurrence of the segment, the sequence number will be one, for the second occurrence, the sequence number will be two, etc.

Example: 2

OBX-2 Value Type

Definition: This field identifies the format of the observation value in OBX-5.

Tables: A subset of the HL7 Table 0125 – Value type is used.

Value	Description
CE	Coded Entry
FT	Formatted Text (Display)
NM	Numeric
ST	String Data
TS	Time Stamp (Date & Time)

Example: ST

OBX-3 Observation Identifier

SEQ	DT	TBL#	Component Name	CCR
1	ST	0005	Identifier	
2	ST		Text	
3	ST		Name of Coding System	
4	ST		Alternate Identifier	
5	ST		Alternate Text	
6	ST		Name of Alternate Coding System	
7	ST		Alternate Identifier 2	
8	ST		Alternate Text 2	
9	ST		Name of Alternate Coding System 2	

Definition: This field identifies the segment.

Format:

- Allergy
  - **CLAS^Drug Class^VA080**
  - **INGR^Ingredients^VA080**
  - **RCTS^Reactions^VA080**
- Autopsy
  - **AUCD^Clinical Diagnosis^VA080**
  - **AUPD^Pathological Diagnosis^VA080**
- Cytopathology
  - **BCH^Brief Clinical History^VA080**
  - **CDIAG^Cytopathology Diagnosis^VA080**
  - **ICD9^ICD9^VA080**
  - **MICRO^Microscopic Description^VA080**
  - **OF^Operative Findings^VA080**
  - **PDIAG^Preoperative Diagnosis^VA080**
  - **POPDIAG^Postoperative Diagnosis^VA080**
  - **SPEC^Specimen^VA080**
- Inpatient
  - **INAD^Admitting Diagnosis^VA080**
  - **INBED^Bed-section Diagnosis^VA080**
  - **INDIS^Discharge Diagnosis^VA080**
  - **INOTR^Other Diagnosis^VA080**
  - **INPRI^Primary Dis. Diagnosis^VA080**
  - **INSURG^Surgical Procedures^VA080**
- IV
  - **ADD^Additive^VA080**
  - **OTPR^Other Print Info^VA080**
  - **SOL^Solution^VA080**
- Laboratory data
  - [<LOINC^Text>**^LN^**][<NLT>**^**<Text>**^99VA64^**]<Local Test ID>**^**<Local Test Name>**^99VA63**
    - **LABC^Lab Comment^VA080**
- Med. Proc. (EKG)
  - **AUTO^Auto Instrument^VA080**
  - **INT^Interpretation^VA080**

- Microbiology
  - **AFB-SP^TB Report^VA080**
  - **BACT^Bact^VA080**
  - **BACT-SP^Bact Smear/Prep^VA080**
  - **COMP^Specimen Comment^VA080**
  - **FUNG^Fungus-Yeast^VA080**
    - **FUNGC^F-Y Comment^VA080**
  - **GRAM^Gram Stain^VA080**
  - **MYCO^Mycobacterium^VA080**
    - **MYCOAF^Myco Anti-F^VA080**
    - **MYCOAO^Myco Anti-O^VA080**
    - **MYCOC^Myco Comment^VA080**
  - **MYCO-SP^Mycology Smear/Prep^VA080**
  - **ORG^Organism^VA080**
    - **ORGA^Org Antibiotic^VA080**
    - **ORGAF^Org Antibiotic-F^VA080**
    - **ORGAO^Org Antibiotic-O^VA080**
    - **ORGC^Org Comment^VA080**
  - **PAR^Parasite^VA080**
    - **PARQ^Stage^VA080**
      - **PARC^Comment^VA080**
  - **PARA-SP^Para Smear/Prep^VA080**
  - **PARP^Parasite Remark^VA080**
  - **VIRUS^Virus^VA080**
  - **VIRUSR^Virology RPT^VA080**
- Outpatient
  - **OCPT^Procedures^VA080**
  - **OICD9^Diagnosis^VA080**
- Problem List
  - **EXPR^Expression^VA080**
  - **NOTE^Note Narrative^VA080**
  - **PRVN^Provider Narrative^VA080**
- Radiology
  - **CH^Clinical History^VA080**
  - **IT^Impression Text^VA080**
  - **RT^Report Text^VA080**
- Surgical Pathology
  - **BCH^Brief Clinical History^VA080**
  - **GDESC^Gross Decription^VA080**
  - **ICD9^ICD-9 Code^VA080**
  - **MDESC^Microscopic Description^VA080**
  - **OF^Operative Findings^VA080**
  - **PDIAG^Preoperative Diagnosis^VA080**
  - **POPDIAG^Postoperative Diagnosis^VA080**
  - **SPDIAG^Surgical Pathology Diagnosis^VA080**
  - **SPEC^Specimen^VA080**
- Vitals
  - **BP^Blood Pressure^VA080**
  - **HT^Height^VA080**
  - **P^Pulse^VA080**
  - **PN^Pain^VA080**
  - **R^Respiration^VA080**
  - **T^Temperature^VA080**
  - **WT^Weight^VA080**

Example:
- Laboratory data

```
718-7^HEMOGLOBIN:MCNC:PT:BLD:QN^LN
^83020.0000^Hemoglobin^99VA64^CH386^HGB^99VA63
```

OBX-4 Observation Sub-ID

Definition: This field contains the result observed by the observation producer. This field is populated in the following cases only:

- Laboratory data:
  - If OBX-3 contains the LOINC code and this field is blank then this is the main lab OBX segment.
  - If OBX-3 contains "LABC^Lab Comment" and this field contains "LCOMM", then the OBX-5 will contain the Lab Comment.
- Med. Proc. (EKG):
  - If OBX-3 contains "INT^Interpretation", then this field may contain the Interpretation Code Modifier for Medical Procedure data.
- Microbiology — If OBX-3 contains "MYCOAF^Myco Anti-F", "MYCOAO^Myco Anti-O", "ORGAF^Org Antibiotic-F", or "ORGAO^Org Antibiotic-O", then this field contains the microbiology field name.
- Vitals: — Unique identifier for the record.

Example:
- Med. Proc. (EKG): `CHANGES OR SERIAL`
- Laboratory data: `LCOMM`
- Microbiology `STR`
- Vitals: `2355`

OBX-5 Observation Value

Definition: This field contains the result(s) observed by the observation producer. The format depends on the data type in OBX-2 and the content depends on OBX-3.

- Vitals: <Rate>**^**<Quality>**^**<Qualifiers> - these values are always separated by the '^' character (even if other component separator is used), then the whole string is encoded according to the HL7 standard.

Example:
- `Vitals:` `34\S\Weak\S\QER`
- `Otherwise:` `103.9`

Note: `This field can be repeated in the following segments:`

- Allergy
  - **`CLAS^Drug Class^VA080`**
- Cytopathology
  - **`ICD9^ICD9^VA080`**
- Inpatient
  - **`INBED^Bed-section Diagnosis^VA080`**
  - **`INDIS^Discharge Diagnosis^VA080`**
  - **`INOTR^Other Diagnosis^VA080`**
  - **`INSURG^Surgical Procedures^VA080`**
- Surgical Pathology
  - **`ICD9^ICD-9 Code^VA080`**

This field can contain multi-line text in the following segments (lines are separated by ".br" enclosed in HL7 escape character):

- Autopsy
  - **`AUCD^Clinical Diagnosis^VA080`**
  - **`AUPD^Pathological Diagnosis^VA080`**
- Cytopathology
  - **`BCH^Brief Clinical History^VA080`**

- **CDIAG^Cytopathology Diagnosis^VA080**
- **MICRO^Microscopic Description^VA080**
- **OF^Operative Findings^VA080**
- **PDIAG^Preoperative Diagnosis^VA080**
- **POPDIAG^Postoperative Diagnosis^VA080**

- Med. Proc. (EKG)
  - **AUTO^Auto Instrument^VA080**
- Problem List
  - **NOTE^Note Narrative^VA080**
- Radiology
  - **CH^Clinical History^VA080**
  - **IT^Impression Text^VA080**
  - **RT^Report Text^VA080**
- Surgical Pathology
  - **BCH^Brief Clinical History^VA080**
  - **GDESC^Gross Decription^VA080**
  - **MDESC^Microscopic Description^VA080**
  - **OF^Operative Findings^VA080**
  - **PDIAG^Preoperative Diagnosis^VA080**
  - **POPDIAG^Postoperative Diagnosis^VA080**
  - **SPEC^Specimen^VA080**

OBX-6 Units

SEQ	DT	TBL#	Component Name	CCR
1	ST	0005	Identifier	
2	ST		Text	
3	ST		Name of Coding System	N/A
4	ST		Alternate Identifier	N/A
5	ST		Alternate Text	N/A
6	ST		Name of Alternate Coding System	N/A

Definition: This field is populated in the following cases only:

- Inpatient: Bed Section, if OBX-3 contains "INOTR^Other Diagnosis" or "INBED^Bedsection Diagnosis"
- Laboratory data: Unit of the observation value
- Microbiology: Quantity (free text), if OBX-3 contains "FUNG^Fungus-Yeast", "MYCO^Mycobacterium", or "PARQ^Stage"
- Vitals: Value in metric system

Example:

- Inpatient: `94^INTERMEDIATE MEDICINE – LTC`
- Laboratory data: `GM/DL`
- Microbiology: ???
- `Vitals:` `182.88`

OBX-7 References Range

Definition: This field is populated in the following cases only:

- IV:
  - Strength for additive, if OBX-3 contains "ADD^Additive";
  - Volume for solution, if OBX-3 contains "SOL^Solution".
- Laboratory data: <Lower>-<Upper>
- Microbiology:
  - <MIC> - Minimum Inhibitory Concentration (LAB DATA file (#63) → MICROBIOLOGY multiple (5) → ORGANISM multiple (12) → ANTIBIOTIC multiple (200) → 'MIC(ug/ml)' field (1)), if OBX-3 contains "ORGA^Org Antibiotic";
  - Acid Fast Stain result, if OBX-3 contains "AFB-SP^TB Report" (LAB DATA file (#63) → MICROBIOLOGY multiple (5) → ACID FAST STAIN (24)).
- Vitals: Body Mass, if OBX-3 contains "WT^Weight"

Example:
- IV: `37 MG`
- Laboratory data: `3.4-5.0`
- Microbiology: `23`
- `Vitals:` `27`

OBX-8 Abnormal Flags

Definition: This field is populated in the following segments only:

- Laboratory data: Flag on Values for lab tests.

Example:
- Laboratory data: `LL`

OBX-11 Observation Result Status

Definition: This field contains the observation result status.

Tables: A subset of the HL7 Table 0085 – Observation result status codes interpretation is used.

Value	Description
C	Record coming over is a correction and thus replaces a final result
F	Final results; Can only be changed with a corrected result
I	Specimen in lab; results pending
P	Preliminary results

Example: `F`

OBX-12 Date Last Observation Normal Value

Definition: This field is populated in the following cases only:

- Allergy: Reactions Date/Time Entered
- Inpatient: Bed-section End Date/Time, if OBX-3 contains "INBED^Bedsection Diagnosis"

Format: YYYYMMDD[hhmm[ss]] [+|-zzzz]

Example: `200502101015-0800`

OBX-13 User Defined Access Checks

Definition: This field is populated in the following cases only:

- Microbiology:
  - <MBC> - Minimum Bactericidal Concentration (LAB DATA file (#63) → MICROBIOLOGY multiple (5) → ORGANISM multiple (12) → ANTIBIOTIC multiple (200) → 'MBC(ug/ml)' field (2)), if OBX-3 contains "ORGA^Org Antibiotic".

Example:
- Microbiology: `222`

OBX-14 Date/Time of the Observation

Definition: This field is populated in the following cases only:

- Inpatient:
  - Bed Section Start Date, if OBX-3 contains "INBED^Bedsection Diagnosis";
  - Surgical Procedure Date, if OBX-3 contains "INSURG^Surgical Procedures";
  - Other Procedure Date, if OBX-3 contains "INOTR^Other Diagnosis".
- Laboratory data: Collection Date/Time
- Microbiology: Date/Time of the TB report approval, if OBX-3 contains "AFB-SP^TB Report")
- Vitals: Date/Time of Measurement

Format: YYYYMMDD[hhmm[ss]] [**+**|**-**zzzz]

Example: `200502101015-0800`

OBX-15 Producer's ID

SEQ	DT	TBL#	Component Name	CCR
1	ST	0005	Identifier	Station Number
2	ST		Text	Institution Name
3	ST		Name of Coding System	**99VA4**
4	ST		Alternate Identifier	N/A
5	ST		Alternate Text	N/A
6	ST		Name of Alternate Coding System	N/A

Definition: This field contains the facility that performed the testing. It is populated in the following cases only:

- Laboratorry data

Example: `499^HINES OIFO^99VA4`

OBX-16 Responsible Observer

SEQ	DT	TBL#	Component Name	CCR
1	ST		ID Number	IEN of the user in the NEW PERSON file (#200)
2	FN		Family Name	
3	ST		Given Name	
4	ST		Second and further given names or initials thereof	
5	ST		Suffix (e.g., JR or III)	
6	ST		Prefix (e.g., DR)	
7	IS	0360	Degree (e.g., MD)	N/A
8	IS	0297	Source Table	N/A
9	HD		Assigning Authority	N/A
10	ID	0200	Name Type Code	N/A
11	ST		Identifier Check Digit	N/A
12	ID	0061	Code identifying the check digit scheme employed	N/A
13	IS		Identifier Type Code	Provider Class Name
14	HD		Assigning Facility	N/A
15	ID	0465	Name Representation Code	N/A
16	CE	0448	Name Context	N/A
17	DR		Name Validity Range	N/A
18	ID	0444	Name Assembly Order	N/A

Definition: This field identifies the provider. It is populated in the following cases only:

- Laboratory data: Technician who performed the analysis
  <User IEN>**-**<Station Number>**^**<Last Name>**^**<First Name>**^**…
- Outpatient: Procedure Provider and the Provider's Class Name
  <User IEN>**^^^^^^^^^^^^^**<Provider Class Name>

Example: `2177^^^^^^^^^^^^^PHYSICIAN`

OBX-17 Observation Method

SEQ	DT	TBL#	Component Name	CCR
1	ST	0005	Identifier	
2	ST		Text	
3	ST		Name of Coding System	
4	ST		Alternate Identifier	N/A
5	ST		Alternate Text	N/A
6	ST		Name of Alternate Coding System	N/A

Definition: This field is populated in the following cases only:

- Laboratorry data: Observation Method
  <Workload Suffix Code>**^**<Name>**^99VA64_2**

Example: `.3112^CHEM 1^99VA64_2`

Sample OBX Segments

Allergy

```
OBX|1|FT|INGR^Ingredients^VA080||Drug ingredients text||||||F
OBX|2|FT|CLAS^Drug Class^VA080||Drug Class Text||||||F
OBX|3|FT|RCTS^Reactions^VA080||Reactions Text||||||F|20021203
```

Autopsy

```
OBX|1|FT|AUCD^Clinical Diagnosis^VA080||Text Line #1\.br\Text Line #2||||||F
OBX|2|FT|AUPD^Pathological Diagnosis^VA080||Text||||||F
```

Cytopathology

```
OBX|1|FT|SPEC^Specimen^VA080||BLADDER WASH||||||F
OBX|2|FT|BCH^Brief clinical History^VA080||HX BLADDER CA||||||F
OBX|3|FT|MICRO^Microscopic Examination^VA080||CLASS I (Absence of atypical
cells.)|||||| F
```

Inpatient

```
OBX|1|FT|INAD^Admitting Diagnosis^VA080||309.4||||||F
OBX|2|FT|INPRI^Primary Dis Diagnosis^VA080||204.9||||||F
OBX|3|FT|INDIS^Discharge Diagnosis^VA080||301.2||||||F
OBX|4|FT|INBED^Bedsection Diagnosis^VA080||301.3~303.2|Bed
Section|||||F|199504151100-0600||199404151100-0600
OBX|5|FT|INSURG^Surgical Procedures^VA080||84.3~34.3||||||F|| |199504151100-
0600
OBX|6|FT|INOTR^Other Diagnosis^VA080||83.1~93.1|Bed
Section|||||F|||199504151100-0600
```

IV

```
OBX|1|FT|ADD^Additive^VA080||Addative text||300||||F
OBX|2|FT|SOL^Solution^VA080||Solution text||300ml||||F
OBX|3|FT|OTPR^Other Print info.^VA080||Other print text||||||F
```

Laboratory Data

```
OBX|1||777-3^PLATELETS:NCNC:PT:BLD:QN:AUTOMATED COUNT^LN
^85570.0000^Platelet Count Whole Blood^99VA64||3.6|g/dL|3.3-
4.8||||F||2|20020129082501-0700|612GF^MARTINEZ O PC/CREC^99VA4
|617-VA612GF^
OBX|2||LABC|LCOMM|Lab Comments go here||||||F
OBX|3||777-3^PLATELETS:NCNC:PT:BLD:QN:AUTOMATED COUNT^LN
^85570.0000^Platelet Count Whole Blood^99VA64|PRICE|300||||||F
|||200502281000-0800|640^PALO ALTO HEALTH CARE SYSTEM - PALO ALTO
DIVSION^99VA4|2785-640^DEVINZI^LARCY|.3112^CHEM 1^99VA64_2|
```

Med. Proc. (EKG)

```
OBX|1|FT|INT^Interpretation^VA080|CHANGES OR SERIAL|RECOMMEND CLINICAL
CORRELATION||||||F
OBX|2|FT|AUTO^Auto Instrument^VA080||This is the Auto-Instrument Diagnosis,
which is a free text word processing field||||||F
```

Microbiology

```
OBX|1|FT|BACT^Bact^VA080||Bact Remarks||||||F
OBX|2|FT|GRAM^Gram Stain^VA080||Gram Stain Text||||||F
```

```
OBX|3|FT|ORGC^Org Comment^VA080||Org Comment||||||F
OBX|4|FT|ORG^Organism^VA080||Organism Comment||||||F
OBX|5|FT|ORGQ^Quantitiy^VA080||Organism Quantity||||||F
OBX|6|FT|PAR^Parasite^VA080||Parasite Text|T|||||F
OBX|7|FT|PARQ^Quantity^VA080||Parasite Quantity Text||||||F
OBX|8|FT|PARC^Comment^VA080||Parasite Comment Text||||||F
OBX|9|FT|PARP^Parasite Remark^VA080||Parasite Remark||||||F
OBX|10|FT|COMP^Specimen Comment^VA080||Specimen Comment||||||F
```

Outpatient

```
OBX|1|FT|OCPT^Procedures^VA080||93455||||||F||||
|2177^^^^^^^^^^^^PHYSICIAN
OBX|2|FT|OICD9^Diagnosis^VA080||309.2||||||F
```

Problem List

```
OBX|1|FT|PRVN^Provider Narrative^VA080||Mood Disorder in conditions
classified elsewhere (ICD-9-CM 293.83)||||||F
OBX|2|FT|EXPR^Expression^VA080||Unresolved||||||F
OBX|2|FT|NOTE^Note Narrative^VA080||Note goes here||||||F
```

Radiology

```
OBX|1|FT|RT^Report Text^VA080||This is where the report test goes||||||F
OBX|2|FT|IT^Impression Text^VA080||This is where the impression text
goes||||||F
OBX|3|FT|ACH^Additional Clinical History^VA080||This is where the additional
clinical information goes||||||F
```

Surgical Pathology

```
OBX|1|FT|SPEC^Specimen^VA080||This is the specimen text||||||F
OBX|2|FT|BCH^Brief clinical History^VA080||Clinical history text||||||F
OBX|3|FT|PDIAG^Preoperative Diagnosis^VA080||Preoperative diagnosis
text||||||F
OBX|4|FT|OF^Operative Findings^VA080||Operative findings text||||||F
OBX|5|FT|POPDIAG^Postoperative Diagnosis^VA080||Preoperative text||||||F
OBX|6|FT|GDESC^Gross Decription^VA080||Gross description text||||||F
OBX|7|FT|MDESC^Microscopic Description^VA080||Microscopic description
text||||||F
OBX|8|FT|SPDIAG^Surgical Pathology Diagnosis^VA080||Surgical pathology
text||||||F
OBX|9|FT|ICD9^ICD9^VA080||304.6||||||F
```

Vitals

```
OBX|1|FT|BP^Blood Pressue^VA080|5853632|136/72\S\SITTING\S\L
ARM;SITTING;CUFF;ADULT||||||F|||20050228091501-0800
OBX|2|FT|T^Tempreture^VA080|5853636|98.2\S\\S\ORAL|36.8|||||F
|||20050228091501-0800
OBX|3|FT|R^Respiration^VA080|5853635|13\S\\S\SPONTANEOUS||||||F
|||200502280915-0800
OBX|4|FT|P^Pulse^VA080|5853634|76\S\\S\RADIAL;PALPATED||||||F
|||20050228091501-0800
OBX|5|FT|PN^Pain^VA080|5853633|0\S\\S\||||||F|||20050228091501-0800
OBX|6|FT|WT^Weight^VA080|5844022|195.7\S\\S\|88.95|27||||F
|||200502281300-0800
```

ORC – Common Order Segment

SEQ	LEN	DT	OPT	RP/#	TBL#	Field Name	CCR
1	2	ID	R	N	0119	Order Control	See Notes
2	22	EI	C			Placer Order Number	See Notes
3	22	EI	C			Filler Order Number	N/A
4	22	EI	O			Placer Group Number	N/A
5	2	ID	O	N	0038	Order Status	N/A
6	1	ID	O		0121	Response Flag	N/A
7	200	TQ	O	Y		Quantity/Timing	N/A
8	200	CM	O			Parent	N/A
9	26	TS	O			Date/Time of Transaction	See Notes
10	250	XCN	O	Y		Entered By	N/A
11	250	XCN	O	Y		Verified By	N/A
12	250	XCN	O	Y		Ordering Provider	See Notes
13	80	PL	O			Enterer's Location	N/A
14	250	XTN	O	Y/2		Call Back Phone Number	N/A
15	26	TS	O			Order Effective Date/Time	See Notes
16	250	CE	O			Order Control Code Reason	See Notes
17	250	CE	O			Entering Organization	See Notes
18	250	CE	O			Entering Device	N/A
19	250	XCN	O	Y		Action By	N/A
20	250	CE	O		0339	Advanced Beneficiary Notice Code	N/A
21	250	XON	O	Y		Ordering Facility Name	N/A
22	250	XAD	O	Y		Ordering Facility Address	N/A
23	XTN	O	Y		XTN	Ordering Facility Phone Number	N/A
24	XAD	O	Y		XAD	Ordering Provider Address	N/A
25	CWE	O	N		CWE	Order Status Modifier	N/A

Field Definitions

ORC-1 Order Control

Definition: This field determines the function of the order segment. For this interface the code will be set to indicate results follow.

Value: **NW**

ORC-2 Placer Order Number

SEQ	DT	TBL#	Component Name	CCR
1	ST		Entity Identifier	Number
2	IS		Namespace ID	Type
3	ST		Universal ID	N/A
4	ID		Universal ID Type	N/A

Definition: This field contains an order number associated with the pharmacy data to follow.

- Inpatient: <Order Number>**^IP**
- Outpatient: <Prescription Number>**^OP**

Example: `1000000429^OP`

ORC-9 Date/Time of Transaction

Definition: This field is populated in the following cases only:

- Outpatient: Release Date/Time

Format: YYYYMMDD[hhmm[ss]] [**+**|**-**zzzz]

Example: `20041006`

ORC-12 Ordering Provider

SEQ	DT	TBL#	Component Name	CCR
1	ST		ID Number	IEN of the user in the NEW PERSON file (#200)
2	FN		Family Name	N/A
3	ST		Given Name	N/A
4	ST		Second and further given names or initials thereof	N/A
5	ST		Suffix (e.g., JR or III)	N/A
6	ST		Prefix (e.g., DR)	N/A
7	IS	0360	Degree (e.g., MD)	N/A
8	IS	0297	Source Table	N/A
9	HD		Assigning Authority	N/A
10	ID	0200	Name Type Code	N/A
11	ST		Identifier Check Digit	N/A
12	ID	0061	Code identifying the check digit scheme employed	N/A
13	IS		Identifier Type Code	Provider Class Name
14	HD		Assigning Facility	N/A
15	ID	0465	Name Representation Code	N/A

SEQ	DT	TBL#	Component Name	CCR
16	CE	0448	Name Context	N/A
17	DR		Name Validity Range	N/A
18	ID	0444	Name Assembly Order	N/A

Definition: This field identifies the individual responsible for the request. Names are not used to ensure data protection.

Example: `2177^^^^^^^^^^^^^PHD`

ORC-15 Order Effective Date/Time

Definition: This field contains the order start date/time.

Format: YYYYMMDD[hhmm[ss]] [**+**|**-**zzzz]

Example: `200503140944-0800`

ORC-16 Order Control Code Reason

SEQ	DT	TBL#	Component Name	CCR
1	ST	0005	Identifier	N/A
2	ST		Text	N/A
3	ST		Name of Coding System	N/A
4	ST		Alternate Identifier	N/A
5	ST		Alternate Text	**NEW**
6	ST		Name of Alternate Coding System	N/A

Definition: This field identifies the reason for the order. For this interface, it will be set to new.

Value: **^^^^NEW**

ORC-17 Entering Organization

SEQ	DT	TBL#	Component Name	CCR
1	ST	0005	Identifier	Station Number
2	ST		Text	Institution Name
3	ST		Name of Coding System	**99VA64**
4	ST		Alternate Identifier	N/A
5	ST		Alternate Text	N/A
6	ST		Name of Alternate Coding System	N/A

Definition: This field distinguishes the station where the order was made.

Example: `499^HINES OIFO^99VA4`

Sample ORC Segments

- Inpatient

```
ORC|NW|7338989V2726709^IP|||||||||43882^^^^^^^^^^^^RESIDENT||
|200503140944-0800|^^^^NEW|640^PALO ALTO HCS^99VA4
```

- Outpatient

```
ORC|NW|5666184^OP|||||||20040517|||7114^^^^^^^^^^^^NURSE
PRACTITIONER|||20040507|^^^^NEW|640^PALO ALTO HCS^99VA4
```

PID – Patient ID Segment

SEQ	LEN	DT	OPT	RP/#	TBL#	Field Name	CCR
1	4	SI	O			Set ID - PID	See Notes
2	20	CX	B			Patient ID	N/A
3	250	CX	R	Y		Patient Identifier List	See Notes
4	20	CX	B	Y		Alternate Patient ID - PID	N/A
5	250	XPN	R	Y		Patient Name	See Notes
6	250	XPN	O	Y		Mother's Maiden Name	N/A
7	26	TS	O			Date/Time of Birth	See Notes
8	1	IS	O		0001	Sex	See Notes
9	250	XPN	O	Y		Patient Alias	N/A
10	250	CE	O	Y	0005	Race	See Notes
11	250	XAD	O	Y		Patient Address	See Notes
12	4	IS	B		0289	County Code	N/A
13	250	XTN	O	Y		Phone Number - Home	N/A
14	250	XTN	O	Y		Phone Number - Business	N/A
15	250	CE	O		0296	Primary Language	N/A
16	250	CE	O		0002	Marital Status	N/A
17	250	CE	O		0006	Religion	N/A
18	250	CX	O			Patient Account Number	N/A
19	16	ST	B			SSN Number - Patient	See Notes
20	25	DLN	O			Driver's License Number - Patient	N/A
21	250	CX	O	Y		Mother's Identifier	N/A
22	250	CE	O	Y	0189	Ethnic Group	See Notes
23	250	ST	O			Birth Place	N/A
24	1	ID	O		0136	Multiple Birth Indicator	N/A
25	2	NM	O			Birth Order	N/A
26	250	CE	O	Y	0171	Citizenship	N/A
27	250	CE	O		0172	Veterans Military Status	N/A
28	250	CE	O		0212	Nationality	N/A
29	26	TS	O			Patient Death Date and Time	See Notes
30	1	ID	O		0136	Patient Death Indicator	N/A
31	1	ID	O		0136	Identity Unknown Indicator	N/A
32	20	IS	O	Y	0445	Identity Reliability Code	N/A
33	26	TS	O			Last Update Date/Time	N/A

SEQ	LEN	DT	OPT	RP/#	TBL#	Field Name	CCR
34	40	HD	O			Last Update Facility	N/A
35	250	CE	C		0446	Species Code	N/A
36	250	CE	C		0447	Breed Code	N/A
37	80	ST	O			Strain	N/A
38	250	CE	O	2	0429	Production Class Code	N/A

Field Definitions

PID-1 Set ID – PID

Definition: This field contains the number that identifies this transaction. For the first occurrence of the segment, the sequence number shall be one, for the second occurrence, the sequence number shall be two, etc.

Example: 2

PID-3 Patient Identifier List

SEQ	DT	TBL#	Component Name	CCR
1	ST		ID	
2	ST		Check Digit	
3	ID	0061	Code of the Check Digit Scheme	
4	HD	0363	Assigning Authority	
5	ID	0203	Identifier Type Code	
6	HD		Assigning Facility	
7	DT		Effective Date	N/A
8	DT		Expiration Date	N/A

Definition: This field contains the list of identifiers (one or more) used by the healthcare facility to uniquely identify a patient (e.g., medical record number, billing number, birth registry, national unique individual identifier, etc.).

Currently, the CCR package uses 2 identifiers: Patient IEN (DFN) and Integration Control Number (if available). Patient IEN is concatenated with the station number by the receiver to create a unique identifier.

Format: The receiver should determine the type of identifier using the value of the 5th component (NI, PI, or U):

- ICN: <ICN>**^^^USVHA&&0363^NI^VA FACILITY ID&**<Station Number>**&L**
- Patient IEN: <DFN>**^^^USVHA&&0363^PI^VA FACILITY ID&**<Station Number>**&L**
- Registry State: PID segments in the registry-wide section of the batch utilize the following format of this field: **0^^^^U**

Example:
```
1243567890V123456^^^USVHA&&0363^NI^VA FACILITY ID&640&L
~325500^^^USVHA&&0363^PI^VA FACILITY ID&640&L
```

PID-5 Patient Name

Definition:
- Clinical Data:
- Registry Data: Despite the fact that the *Patient Name* field is a required one, it is not populated in regular PID segments due to patient privacy and security reasons.
- Registry State: PID segments in the registry-wide section of the batch have **`PSEUDO^PATIENT`** string in this field.

Example: `PSEUDO^PATIENT`

PID-7 Date/Time of Birth

Definition: This field contains the patient's date of birth.

Format: YYYYMMDD (either day or both month and day can be zeros)

Example: `19521027`

PID-8 Sex

Definition: This field contains the patient's sex.

Format: A subset of the HL7 Table 0001 - Administrative sex is used:

Value	Description
F	Female
M	Male
O	Other
U	Unknown

Example: F

PID-10 Race and Collection Method

SEQ	DT	TBL#	Component Name	CCR
1	ST	0005	Identifier	
2	ST		Text	
3	ST		Name of Coding System	
4	ST		Alternate Identifier	
5	ST		Alternate Text	
6	ST		Name of Alternate Coding System	

Definition: This field refers to the patient's race.

Format: The *Identifier* has the following format: <Race ID>**-**<Collection Method ID>.

Tables:

ID	Race
1002-5	AMERICAN INDIAN OR ALASKA NATIVE
2028-9	ASIAN
2054-5	BLACK OR AFRICAN AMERICAN
2076-8	NATIVE HAWAIIAN OR OTHER PACIFIC ISLANDER
2106-3	WHITE
0000-0	DECLINED TO ANSWER
9999-4	UNKNOWN BY PATIENT

ID	Collection Method
SLF	SELF IDENTIFICATION
PRX	PROXY
OBS	OBSERVER
UNK	UNKNOWN

Example: `2106-3-SLF^WHITE^0005^2106-3^WHITE^CDC`

PID-11 Patient address

SEQ	DT	TBL#	Component Name	CCR
1	ST		Street Address	N/A
2	ST		Other Designation	N/A
3	ST		City	N/A
4	ST		State or Province	N/A
5	ST		ZIP or Postal Code	
6	ID	0399	Country	N/A
7	ID	0190	Address Type	N/A
8	ST		Other Geographic Designation	N/A
9	IS	0289	County/Parish Code	N/A
10	IS	0288	Census Tract	N/A
11	ID	0465	Address Representation Code	N/A
12	DR		Address Validity Range	N/A

Definition: This field contains the mailing address of the patient. The CCR HL7 interface sends only the zip code.

Format: NNNNN[**-**NNN]

Example: `^^^^60141-7008`

PID-19 SSN Number - Patient

Definition: This field contains the encoded social security number of the patient.

Format: NNNNNNNNNNN[**P**] (11 digits followed by optional indicator of a pseudo-SSN).

Example: `60129282062`

PID-22 Ethnic Group

SEQ	DT	TBL#	Component Name	CCR
1	ST		Identifier	
2	ST		Text	
3	ST		Name of Coding System	
4	ST		Alternate Identifier	
5	ST		Alternate Text	
6	ST		Name of Alternate Coding System	

Definition: This field refers to the patient's ethnicity.

Format: The *Identifier* has the following format: <Ethnicity ID>**-**<Collection Method ID>.

Tables:

ID	Ethnicity
2135-2	HISPANIC OR LATINO
2186-5	NOT HISPANIC OR LATINO
0000-0	DECLINED TO ANSWER
9999-4	UNKNOWN BY PATIENT

ID	Collection Method
SLF	SELF IDENTIFICATION
PRX	PROXY
OBS	OBSERVER
UNK	UNKNOWN

Example:
```
2186-5-SLF^NOT HISPANIC OR LATINO^0189
^2186-5^NOT HISPANIC OR LATINO^CDC
```

PID-29 Patient Death Date and Time

Definition: This field contains the date on which the patient death occurred.

Format: YYYYMMDD[hhmm[ss]] [**+**|**-**zzzz]

Example:
```
195210271230
```

Sample PID Segment

```
PID|1||1243567890V123456^^^USVHA&&0363^NI^VA FACILITY
ID&640&L~325500^^^USVHA&&0363^PI^VA FACILITY ID&640&L||||19630408|M||2106-3-
SLF^WHITE^0005^2106-3^WHITE^CDC|^^^^95123|||||||00007600044| ||2186-5-
SLF^NOT HISPANIC OR LATINO^0189^2186-5^NOT HISPANIC OR LATINO^CDC|||||||""
```

PV1 – Patient Visit Segment

SEQ	LEN	DT	OPT	RP/#	TBL#	Field Name	CCR
1	4	SI	O			Set ID - PV1	See Notes
2	1	IS	R		0004	Patient Class	See Notes
3	80	PL	O			Assigned Patient Location	See Notes
4	2	IS	O		0007	Admission Type	See Notes
5	250	CX	O			Preadmit Number	N/A
6	80	PL	O			Prior Patient Location	See Notes
7	250	XCN	O	Y	0010	Attending Doctor	See Notes
8	250	XCN	O	Y	0010	Referring Doctor	N/A
9	250	XCN	B	Y	0010	Consulting Doctor	N/A
10	3	IS	O		0069	Hospital Service	N/A
11	80	PL	O			Temporary Location	N/A
12	2	IS	O		0087	Preadmit Test Indicator	N/A
13	2	IS	O		0092	Re-admission Indicator	N/A
14	6	IS	O		0023	Admit Source	N/A
15	2	IS	O	Y	0009	Ambulatory Status	N/A
16	2	IS	O		0099	VIP Indicator	N/A
17	250	XCN	O	Y	0010	Admitting Doctor	N/A
18	2	IS	O		0018	Patient Type	N/A
19	30	CX	O			Visit Number	See Notes
20	50	FC	O	Y	0064	Financial Class	N/A
21	2	IS	O		0032	Charge Price Indicator	N/A
22	2	IS	O		0045	Courtesy Code	N/A
23	2	IS	O		0046	Credit Rating	N/A
24	2	IS	O	Y	0044	Contract Code	N/A
25	8	DT	O	Y		Contract Effective Date	N/A
26	12	NM	O	Y		Contract Amount	N/A
27	3	NM	O	Y		Contract Period	N/A
28	2	IS	O		0073	Interest Code	N/A
29	1	IS	O		0110	Transfer to Bad Debt Code	N/A
30	8	DT	O			Transfer to Bad Debt Date	N/A
31	10	IS	O		0021	Bad Debt Agency Code	N/A
32	12	NM	O			Bad Debt Transfer Amount	N/A
33	12	NM	O			Bad Debt Recovery Amount	N/A

SEQ	LEN	DT	OPT	RP/#	TBL#	Field Name	CCR
34	1	IS	O		0111	Delete Account Indicator	N/A
35	8	DT	O			Delete Account Date	N/A
36	3	IS	O		0112	Discharge Disposition	See Notes
37	25	CM	O		0113	Discharged to Location	N/A
38	250	CE	O		0114	Diet Type	N/A
39	2	IS	O		0115	Servicing Facility	N/A
40	1	IS	B		0116	Bed Status	N/A
41	2	IS	O		0117	Account Status	N/A
42	80	PL	O			Pending Location	N/A
43	80	PL	O			Prior Temporary Location	N/A
44	26	TS	O			Admit Date/Time	See Notes
45	26	TS	O			Discharge Date/Time	See Notes
46	12	NM	O			Current Patient Balance	N/A
47	12	NM	O			Total Charges	N/A
48	12	NM	O			Total Adjustments	N/A
49	12	NM	O			Total Payments	N/A
50	250	CX	O		0203	Alternate Visit ID	N/A
51	1	IS	O		0326	Visit Indicator	See Notes
52	250	XCN	B	Y	0010	Other Healthcare Provider	N/A

Field Definitions

PV1-1 Set ID – PV1

Definition: This field contains the number that identifies this transaction. For the first occurrence of the segment, the sequence number shall be one, for the second occurrence, the sequence number shall be two, etc.

Example: `1`

PV1-2 Patient Class

Definition: This field is used to categorize patients by the type of admission.

Tables:

Value	Description
I	Inpatient
O	Outpatient

Example: `I`

PV1-3 Assigned Patient Location

SEQ	DT	TBL#	Component Name	CCR
1	IS		Point of Care	Station Number
2	IS		Room	N/A
3	IS		Bed	N/A
4	HD		Facility	N/A
5	IS		Location Status	N/A
6	IS		Person Location Type	Clinic Stop Code (for outpatients)
7	IS		Building	N/A
8	IS		Floor	N/A
9	ST		Location Description	N/A

Definition: This field identifies the station where the admission took place.

- Inpatient: Station number for inpatient admissions is returned by the $$SITE^VASITE function and its suffix is removed.
- Outpatient: IEN of the station for outpatient visits is returned by the ENCEVENT^PXKENC procedure. The station number is extracted from the corresponding record of the MEDICAL CENTER DIVISION file (#40.8) and stored "as is" (potentially, with the suffix). Outpatient visits also have the *Person Location Type* component set to the clinic stop code.

Format:
- Inpatient: <Station Number (without suffix)>
- Outpatient: <Station Number>**^^^^^**<Clinic Stop Code>

Example:
- Inpatient: `499`
- Outpatient: `499UX^^^^^203`

PV1-4 Admission Type

Definition:
- Inpatient N/A
- Outpatient: Admission Type

Tables:

Value	Description
A	Ancillary
C	Credit Stop
P	Primary
O	Occasion of Service
S	Stop Code

Example: P

PV1-6 Prior Patient Location

SEQ	DT	TBL#	Component Name	CCR
1	IS		Point of Care	N/A
2	IS		Room	N/A
3	IS		Bed	IEN of the bed section (specialty) in the SPECIALTY file (#42.4)
4	HD		Facility	N/A
5	IS		Location Status	N/A
6	IS		Person Location Type	N/A
7	IS		Building	N/A
8	IS		Floor	N/A
9	ST		Location Description	Name of the bed section (the .01 field of the file #42.4)

Definition:
- Inpatient: Bed Section at the time of discharge
- Outpatient: N/A

Example: `^^71^^^^^^LONG TERM PSYCHIATRY(>45 DAYS)`

PV1-7 Attending Doctor

SEQ	DT	TBL#	Component Name	CCR
1	ST		ID Number	User IEN in the NEW PERSON file (#200)
2	FN		Family Name	N/A
3	ST		Given Name	N/A
4	ST		Second and further given names or initials thereof	N/A
5	ST		Suffix (e.g., JR or III)	N/A
6	ST		Prefix (e.g., DR)	N/A
7	IS	0360	Degree (e.g., MD)	N/A
8	IS	0297	Source Table	N/A
9	HD		Assigning Authority	N/A
10	ID	0200	Name Type Code	N/A
11	ST		Identifier Check Digit	N/A
12	ID	0061	Code identifying the check digit scheme employed	N/A
13	IS		Identifier Type Code	Provider Class Name
14	HD		Assigning Facility	N/A
15	ID	0465	Name Representation Code	N/A

SEQ	DT	TBL#	Component Name	CCR
16	CE	0448	Name Context	N/A
17	DR		Name Validity Range	N/A
18	ID	0444	Name Assembly Order	N/A

Definition:
- Inpatient N/A
- Outpatient: Attending Physician(s). Provider names are not used to ensure the patient privacy protection.

Example: `2177^^^^^^^^^^^^PHYSICIAN`

PV1-19 Visit Number

SEQ	DT	TBL#	Component Name	CCR
1	ST		ID	IEN of the Visit
2	ST		Check Digit	N/A
3	ID	0061	Code identifying the check digit scheme employed	N/A
4	HD		Assigning Authority	N/A
5	ID	0203	Identifier Type Code	N/A
6	HD		Assigning Facility	N/A
7	DT		Effective Date	N/A
8	DT		Expiration Date	N/A

Definition: This field contains the IEN of the visit and can be used to link up with the OBR segment for this visit.
- Inpatient IEN of the record of the PTF CLOSE OUT file (#45.84)
- Outpatient IEN of the record of the VISIT file (#9000010)

Example: `8710273`

PV1-36 Discharge Disposition

Definition: This field contains the.
- Inpatient: Disposition Code of the patient at time of discharge
- Outpatient: N/A

Tables:

Value	Description
1	REGULAR
2	NBC OR WHILE ASIH
3	EXPIRATION 6 MONTH LIMIT
4	IRREGULAR
5	TRANSFER
6	DEATH WITH AUTOPSY
7	DEATH WITHOUT AUTOPSY

Example: 4

PV1-44 Admit Date/Time

Definition:
- Inpatient: Admission Date/Time.
- Outpatient: Visit Date/Time.

Format: YYYYMMDD[hhmm[ss]] [+|-zzzz]

Example: `200403020815-0800`

PV1-45 Discharge Date/Time

Definition:
- Inpatient: Discharge Date/Time
- Outpatient: N/A

Format: YYYYMMDD[hhmm[ss]] [+|-zzzz]

Example: `200403020815-0800`

PV1-51 Visit Indicator

Definition:
- Inpatient: N/A
- Outpatient: Indicates if the visit has been deleted

Tables:

Value	Description
0	Active
1	Deleted

Example: `0`

Sample PV1 Segment

```
PV1|1|O|640^^^^^408|P|||10935^^^^^^^^^^^^PHYSICIAN||||||||||
|8710273|||||||||||||||||||||||||200403020815-0800||||||0
```

RXE – Pharmacy/Treatment Encoded Order Segment

SEQ	LEN	DT	OPT	RP/#	TBL#	Field Name	CCR
1	200	TQ	R			Quantity/Timing	See Notes
2	250	CE	R		0292	Give Code	See Notes
3	20	NM	R			Give Amount - Minimum	See Notes
4	20	NM	O			Give Amount - Maximum	See Notes
5	250	CE	R			Give Units	See Notes
6	250	CE	O			Give Dosage Form	See Notes
7	250	CE	O	Y		Provider's Administration Instructions	See Notes
8	200	CM	C			Deliver-to Location	N/A
9	1	ID	O		0167	Substitution Status	N/A
10	20	NM	C			Dispense Amount	See Notes
11	250	CE	C			Dispense Units	N/A
12	3	NM	O			Number of Refills	N/A
13	250	XCN	C	Y		Ordering Provider's DEA Number	N/A
14	250	XCN	O	Y		Pharmacist/Treatment Supplier's Verifier ID	N/A
15	20	ST	C			Prescription Number	See Notes
16	20	NM	C			Number of Refills Remaining	N/A
17	20	NM	C			Number of Refills/Doses Dispensed	See Notes
18	26	TS	C			D/T of Most Recent Refill or Dose Dispensed	See Notes
19	10	CQ	C			Total Daily Dose	See Notes
20	1	ID	O		0136	Needs Human Review	See Notes
21	250	CE	O	Y		Pharmacy/Treatment Supplier's Special Dispensing Instructions	See Notes
22	20	ST	C			Give Per (Time Unit)	See Notes
23	6	ST	O			Give Rate Amount	See Notes
24	250	CE	O			Give Rate Units	See Notes
25	20	NM	O			Give Strength	N/A
26	250	CE	O			Give Strength Units	N/A
27	250	CE	O	Y		Give Indication	See Notes
28	20	NM	O			Dispense Package Size	N/A
29	250	CE	O			Dispense Package Size Unit	N/A
30	2	ID	O		0321	Dispense Package Method	See Notes
31	250	CE	O	Y		Supplementary Code	N/A

Field Definitions

RXE-1 Quantity/Timing

SEQ	DT	TBL#	Component Name	CCR
1	CQ		Quantity	N/A
2	CM		Interval	N/A
3	ST		Duration	N/A
4	TS		Start Date/Time	N/A
5	TS		End Date/Time	N/A
6	ST		Priority	N/A
7	ST		Condition	N/A
8	TX		Text	
9	ID	0472	Conjunction	N/A
10	CM		Order Sequencing	N/A
11	CE		Occurrence Duration	N/A
12	NM		Total Occurrences	N/A

Definition: This field is used by the pharmacy supplier to express the fully coded version of the drug or treatment timing.

- Inpatient: *Text* element of this field contains the Schedule
- Outpatient: **""**

Example:
- Inpatient: `^^^^^^^Comprehensive Met Panel results from HINES DEVELOPMENT`
- Outpatient `""`

RXE-2 Give Code

SEQ	DT	TBL#	Component Name	CCR
1	ST		Identifier	NDC
2	ST		Text	VA Product name
3	ST		Name of Coding System	**PSNDF**
4	ST		Alternate Identifier	NDF IEN concatenated with the VA drug class code
5	ST		Alternate Text	Generic Name
6	ST		Name of Alternate Coding System	**99PSD**

Definition: This field identifies the medical substance provided to the patient.

Example: `0002-1615-02^MAGNESIUM SULFATE 50% 1GM/2ML AMP^PSNDF^31-TN406^MAGNESIUM SO4 4MEQ/ML INJ^99PSD`

RXE-3 Give Amount - Minimum

Definition: This field contains the ordered amount. This field is required but it is not used by the Clinical Case Registries.

Value: `""`

RXE-4 Give Amount - Maximum

Definition:
- Inpatient N/A
- Outpatient Maximum Number of Refills

Example: `5`

RXE-5 Give Units

SEQ	DT	TBL#	Component Name	CCR
1	ST		Identifier	N/A
2	ST		Text	N/A
3	ST		Name of Coding System	N/A
4	ST		Alternate Identifier	`Drug Unit IEN (IEN of the record of the DRUG UNITS file (#50.607)).`
5	ST		Alternate Text	`Drug Unit Name (value of the .01 field of the DRUG UNITS file (#50.607)).`
6	ST		Name of Alternate Coding System	**99PSU**

Definition: This field contains the units for the *Give Amount* field.

Example: `^^^130^MIC/1.5ML^99PSU`

RXE-6 Give Dosage Form

Definition:
- Inpatient: N/A
- Outpatient: Release Date/Time

Format: YYYYMMDD[hhmm[ss]] [**+**|**-**zzzz]

Example: `200403020815-0800`

RXE-7 Provider's Administration Instructions

SEQ	DT	TBL#	Component Name	CCR
1	ST		Identifier	N/A
2	ST		Text	SIG
3	ST		Name of Coding System	N/A
4	ST		Alternate Identifier	N/A
5	ST		Alternate Text	N/A
6	ST		Name of Alternate Coding System	N/A

Definition:
- Inpatient: N/A
- Outpatient: Ordering provider's instructions to the person administering the drug. This field corresponds to the SIG, and it is free text.

Example: `^APP 1 PATCH TO SKIN QAM AND REMOVE HS (TO REPLACE NITROGLYCERIN 6.5MG SA CAP)`

RXE-10 Dispense Amount

Definition:
- Inpatient: N/A
- Outpatient: This field contains the amount dispensed. Valid entries are between 1 and 99999999 with up to 2 decimal places allowed.

Format: NNNNNNNN[.N[N]]

Example: `900.75`

RXE-15 Prescription Number

Definition:
- Inpatient: N/A
- Outpatient: Refill Indicator

Tables:

Value	Description
1	Refill
2	Partial

Example: `1`

RXE-17 Number of Refills/Doses Dispensed

Definition:
- Inpatient: N/A
- Outpatient: Refill Number

Example: `3`

RXE-18 D/T of Most Recent Refill or Dose Dispensed

Definition:
- Inpatient: Last date/time when the dose should be given (stop date/time)
- Outpatient: Date/time when the most recent fill/refill was dispensed (fill date/time)

Format: YYYYMMDD[hhmm[ss]] [**+**|**-**zzzz]

Example: `200403020815-0800`

RXE-19 Total Daily Dose

SEQ	DT	TBL#	Component Name	CCR
1	NM		Quantity	
2	CE		Units	N/A

Definition:
- Inpatient: N/A
- Outpatient: Total Daily Dose. Valid entries range from 1 to 90.

Example: `15`

RXE-20 Needs Human Review

Definition:
- Inpatient: N/A
- Outpatient: Indicator of whether the drug has been transmitted to CMOP

Example: `Y`

RXE-21 Pharmacy/Treatment Supplier's Special Dispensing Instructions

SEQ	DT	TBL#	Component Name	CCR
1	ST		Identifier	
2	ST		Text	N/A
3	ST		Name of Coding System	N/A
4	ST		Alternate Identifier	N/A
5	ST		Alternate Text	N/A
6	ST		Name of Alternate Coding System	N/A

Definition:
- Inpatient: Medication Route
- Outpatient: Clinic Stop Code

Example:
- Inpatient: `Oral`
- Outpatient: `208`

RXE-22 Give Per (Time Unit)

Definition:
- Inpatient: N/A
- Outpatient: Last Dispensed Date/Time

Format: YYYYMMDD[hhmm[ss]] [**+**|**-**zzzz]

Example: `200403020815-0800`

RXE-23 Give Rate Amount

Definition:
- Inpatient: N/A
- Outpatient: Unit Cost

Example: `30.45`

RXE-24 Give Rate Units

SEQ	DT	TBL#	Component Name	CCR
1	ST		Identifier	
2	ST		Text	N/A
3	ST		Name of Coding System	N/A
4	ST		Alternate Identifier	N/A
5	ST		Alternate Text	N/A
6	ST		Name of Alternate Coding System	N/A

Definition:
- Inpatient: Units per Dose. Valid entries range from 0 to 30, with up to 2 decimal places.
- Outpatient: N/A

Format: NN[.N[N]]

Example: `12.25`

RXE-27 Give Indication

SEQ	DT	TBL#	Component Name	CCR
1	ST		Identifier	
2	ST		Text	
3	ST		Name of Coding System	N/A
4	ST		Alternate Identifier	N/A
5	ST		Alternate Text	N/A
6	ST		Name of Alternate Coding System	N/A

Definition:
- Inpatient N/A
- Outpatient Patient Status

Example: 6^OTHER FEDERAL

RXE-30 Dispense Package Method

Definition:
- Inpatient: N/A
- Outpatient: Mail/Window

Tables:

Value	Description
AD	Automatic Dispensing – Mail
TR	Traditional – Window

Example: TR

Sample RXE Segments

Inpatient

```
RXE|^^^^^^^QID PRN|17478-0216-12^NAPHAZOLINE HCL 0.1% SOLN,OPH^PSNDF^900-
OP800^NAPHAZOLINE HCL 0.1% OPH SOLN^99PSD|""||||||||||||||200505301100-
0800|||BOTH EYE|||1
```

Outpatient

```
RXE|""|00056-0510-30^EFAVIRENZ 600MG TAB^PSNDF^3528-AM800
^EFAVIRENZ 600MG TAB^99PSD|""|6|^^^20^MG^99PSU|20050302|^TAKE ONE TABLET BY
MOUTH EVERY DAY|||30|||||1||4|20050228|30|Y|324
|200503021422-0800|8.0047||||3^SC LESS THAN 50%|||AD
```

ZRD – Rated Disabilities Segment

SEQ	LEN	DT	OPT	RP/#	TBL#	Field Name	CCR
1	4	SI	R			Set ID – ZRD	See Notes
2	4	CE	R			Disability Condition	See Notes
3	3	NM	R			Disability %	See Notes
4	1	IS	O		VA001	Service Connected Rated Disability	See Notes
5	30	ST	O			Service Connected Conditions	N/A
6	3	NM	O			Percentage	N/A
7	1	IS	O		0136	Service Dental Injury	N/A
8	1	IS	O		0136	Service Teeth Extracted	N/A
9	8	DT	O			Date of Dental Treatment	N/A
10	100	ST	O			Condition	N/A
11	8	DT	O			Date Condition First Noted	N/A

ZRD-1 Set ID - ZRD

Definition: This field contains the number that identifies this transaction. For the first occurrence of the segment, the sequence number shall be one, for the second occurrence, the sequence number shall be two, etc.

Example: 2

ZRD-2 Disability Condition

SEQ	DT	TBL#	Component Name	CCR
1	ST		Identifier	DX Code
2	ST		Text	Condition Name
3	ST		Name of Coding System	N/A
4	ST		Alternate Identifier	N/A
5	ST		Alternate Text	N/A
6	ST		Name of Alternate Coding System	N/A

Definition: This field holds the disability condition for this patient.

Tables: See the DISABILITY CONDITION file (#31) for possible values of the *DX Code* and *Condition Name*. Some examples are provided below:

Code	Condition Name
5000	OSTEOMYELITIS
5001	BONE DISEASE
5002	RHEUMATOID ARTHRITIS
5003	DEGENERATIVE ARTHRITIS
5004	ARTHRITIS

Example: `5002^RHEUMATOID ARTHRITIS`

ZRD-3 Disability %

Definition: This field holds the percentage at which the VA rated this disability for this patient.

Format: Values range from 0 to 100.

Example: `45`

ZRD-4 Service Connected

Definition: This field indicates if the disability is service connected.

Tables:

Value	Description
0	Not Service Connected
1	Service Connected

Example: `1`

Sample ZRD Segment

```
ZRD|1|7709^HODGKINS DISEASE|100|1
```

ZSP – Service Period Segment

SEQ	LEN	DT	OPT	RP/#	TBL#	Field Name	CCR
1	4	SI	R			Set ID – ZSP	See Notes
2	1	ID	R		VA001	Service Connected?	See Notes
3	3	NM	O			Service Connected Percentage	See Notes
4	2	IS	O		VA011	Period of Service	See Notes
5	1	ST	O			Vietnam Service Indicated	See Notes
6	1	ID	O		VA001	Permanent & Total Disability	See Notes
7	1	ID	O		VA001	Unemployable	See Notes
8	26	TS	O			SC Award Date	See Notes

Field Definitions

ZSP-1 Set ID – ZSP

Definition: This field holds the Set ID. The set ID is 1 by default.

Value: **1**

ZSP-2 Service Connected?

Definition: This field indicates if the patient condition is service connected.

Tables:

Value	Description
0	Not Service Connected
1	Service Connected

Example: 0

ZSP-3 Service Connected Percentage

Definition: This field holds the percentage of service connection.

Format: Values range from 0 to 100.

Example: 60

ZSP-4 Period of Service

Definition: This field holds the period of service that best describes the patient.

Tables: See the PERIOD OF SERVICE file (#21) for possible values. Some examples are provided below:

Value	Description
0	KOREAN
1	WORLD WAR I
2	WORLD WAR II
3	SPANISH AMERICAN
4	PRE-KOREAN
5	POST-KOREAN
6	OPERATION DESERT SHIELD
7	VIETNAM ERA
8	POST-VIETNAM
9	OTHER OR NONE
	…
Y	CAV/NPS
Z	MERCHANT MARINE

Example: `9`

ZSP-5 Vietnam Service Indicated

Definition: This field indicates if the patient served in Vietnam.

Tables:

Value	Description
""	
N	No
U	Unknown
Y	Yes

Example: `N`

ZSP-6 Permanent & Total Disability

Definition: This field indicates if the patient is permanently and totally disabled due to a service-connected condition.

Tables:

Value	Description
0	Not P&T Disabled
1	P&T Disabled

Example: `0`

ZSP-7 Unemployable

Definition: This field indicates if the patient is unemployable due to a service connected condition.

Tables:

Value	Description
0	Employable
1	Unemployable

Example: `1`

ZSP-8 SC Award Date

Definition: This field contains the date on which the service connection is effective. If no date has been entered, the null string will be sent.

Format: YYYYMMDD

Example: 19761205

Sample ZSP Segment

```
ZSP|1|1|30|8|""|0|0|19700325
```

HL7 Tables

Type	Table	Name	Value	Description
User	**0001**	**Administrative sex**		
			A	Ambiguous
			F	Female
			M	Male
			N	Not applicable
			O	Other
			U	Unknown
User	**0004**	**Patient class**		
			B	Obstetrics
			C	Commercial Account
			E	Emergency
			I	Inpatient
			N	Not Applicable
			O	Outpatient
			P	Preadmit
			R	Recurring patient
			U	Unknown
User	**0005**	**Race**		
			1002-5	American Indian or Alaska Native
			2028-9	Asian
			2054-5	Black or African American
			2076-8	Native Hawaiian or Other Pacific Islander
			2106-3	White
			2131-1	Other Race
HL7	**0008**	**Acknowledgment code**		
			AA	Original mode: Application Accept - Enhanced mode: Application acknowledgment: Accept
			AE	Original mode: Application Error - Enhanced mode: Application acknowledgment: Error
			AR	Original mode: Application Reject - Enhanced mode: Application acknowledgment: Reject
			CA	Enhanced mode: Accept acknowledgment: Commit Accept
			CE	Enhanced mode: Accept acknowledgment: Commit Error

Type	Table	Name	Value	Description
			CR	Enhanced mode: Accept acknowledgment: Commit Reject
HL7	**0061**	**Check digit scheme**		
			ISO	ISO 7064: 1983
			M10	Mod 10 algorithm
			M11	Mod 11 algorithm
			NPI	Check digit algorithm in the US National Provider Identifier
User	**0078**	**Abnormal Flags**		
			<	Below absolute low-off instrument scale
			>	Above absolute high-off instrument scale
			A	Abnormal (applies to non-numeric results)
			AA	Very abnormal (applies to non-numeric units, analogous to panic limits for numeric units)
			B	Better--use when direction not relevant
			D	Significant change down
			H	Above high normal
			HH	Above upper panic limits
			I	Intermediate*
			L	Below low normal
			LL	Below lower panic limits
			MS	Moderately susceptible*
			N	Normal (applies to non-numeric results)
			null	No range defined, or normal ranges don't apply
			R	Resistant*
			S	Susceptible*
			U	Significant change up
			VS	Very susceptible*
			W	Worse--use when direction not relevant
HL7	**0085**	**Observation result status codes interpretation**		
			C	Record coming over is a correction and thus replaces a final result
			D	Deletes the OBX record
			F	Final results; Can only be changed with a corrected result.

Type	Table	Name	Value	Description
			I	Specimen in lab; results pending
			N	Not asked; used to affirmatively document that the observation identified in the OBX was not sought when the universal service ID in OBR-4 implies that it would be sought.
			O	Order detail description only (no result)
			P	Preliminary results
			R	Results entered -- not verified
			S	Partial results
			U	Results status change to final without retransmitting results already sent as 'preliminary.' E.g., radiology changes status from preliminary to final
			W	Post original as wrong, e.g., transmitted for wrong patient
			X	Results cannot be obtained for this observation
HL7	**0103**	**Processing ID**		
			D	Debugging
			P	Production
			T	Training
HL7	**0125**	**Value type**		
			AD	Address
			CE	Coded Entry
			CF	Coded Element With Formatted Values
			CK	Composite ID With Check Digit
			CN	Composite ID And Name
			CP	Composite Price
			CX	Extended Composite ID With Check Digit
			DT	Date
			ED	Encapsulated Data
			FT	Formatted Text (Display)
			MO	Money
			NM	Numeric
			PN	Person Name
			RP	Reference Pointer
			SN	Structured Numeric
			ST	String Data.

Type	Table	Name	Value	Description
			TM	Time
			TN	Telephone Number
			TS	Time Stamp (Date & Time)
			TX	Text Data (Display)
			XAD	Extended Address
			XCN	Extended Composite Name And Number For Persons
			XON	Extended Composite Name And Number For Organizations
			XPN	Extended Person Name
			XTN	Extended Telecommunications Number
HL7	**0136**	**Yes/no indicator**		
			N	No
			Y	Yes
HL7	**0155**	**Accept/application acknowledgment conditions**		
			AL	Always
			ER	Error/reject conditions only
			NE	Never
			SU	Successful completion only
User	**0203**	**Identifier type**		
			AM	American Express
			AN	Account number
			BA	Bank Account Number
			BR	Birth registry number
			BRN	Breed Registry Number
			DI	Diner's Club card
			DL	Driver's license number
			DN	Doctor number
			DR	Donor Registration Number
			DS	Discover Card
			EI	Employee number
			EN	Employer number
			FI	Facility ID
			GI	Guarantor internal identifier

Type	Table	Name	Value	Description
			GN	Guarantor external identifier
			HC	Health Card Number
			JHN	Jurisdictional health number (Canada)
			LN	License number
			LR	Local Registry ID
			MA	Medicaid number
			MC	Medicare number
			MCN	Microchip Number
			MR	Medical record number
			MS	MasterCard
			NE	National employer identifier
			NH	National Health Plan Identifier
			NI	National unique individual identifier
			NNxxx	National Person Identifier where xxx is the ISO table 3166 3-character (alphabetic) country code
			NPI	National provider identifier
			PEN	Pension Number
			PI	Patient internal identifier
			PN	Person number
			PRN	Provider number
			PT	Patient external identifier
			RR	Railroad Retirement number
			RRI	Regional registry ID
			SL	State license
			SR	State registry ID
			SS	Social Security number
			U	Unspecified
			UPIN	Medicare/HCFA's Universal Physician Identification numbers
			VN	Visit number
			VS	VISA
			WC	WIC identifier
			WCN	Workers' Comp Number
			XX	Organization identifier

HL7	**0207**	**Processing mode**		
			A	Archive
			I	Initial load
			R	Restore from archive
			T	Current processing, transmitted at intervals (scheduled or on demand). This is the default mode (if the value is omitted).
HL7	**0301**	**Universal ID type**		
			DNS	An Internet dotted name. Either in ASCII or as integers
			GUID	Same as UUID.
			HCD	The CEN Healthcare Coding Scheme Designator. (Identifiers used in DICOM follow this assignment scheme.)
			HL7	Reserved for future HL7 registration schemes
			ISO	An International Standards Organization Object Identifier
			L, M, N	These are reserved for locally defined coding schemes.
			Random	Usually a base64 encoded string of random bits. The uniqueness depends on the length of the bits. Mail systems often generate ASCII string "unique names," from a combination of random bits and system names.
			UUID	The DCE Universal Unique Identifier
			x400	An X.400 MHS format identifier
			x500	An X.500 directory name
User	**0362**	**Sending/receiving facility**		
			NNN	Station number from the INSTITUTION file (#4) without suffix.
Local	**VA001**	**Yes/No**		
			0	No
			1	Yes

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Glossary

Acronyms

Acronym	Description
AAC	Austin Automation Center
AIDS	Acquired Immunodeficiency Syndrome
AMIS	Automated Management Information System
API	Application Programmer Interface
ARV	Antiretroviral medications
CCR	Clinical Case Registries
CDC	Center for Disease Control
CPRS	Computerized Patient Record System
CPT	Current Procedural Terminology
DBIA	Database Integration Agreement
DFN	File Number—the local/facility patient record number (patient file internal entry number)
GUI	Graphical User Interface
Hep C	Hepatitis C
HIV	Human Immunodeficiency Virus
HL7	Health Level Seven
ICD-9	International Classification of Diseases—Ninth edition
ICN	Integration Control Number, or national VA patient record number
ICR	Immunology Case Registry; now called CCR:HIV
IRMS	Information Resource Management Service
LOINC	Logical Observation Identifiers Names and Codes
NPCD	National Patient Care Database
OIFO	Office of Information Field Office
ROR	Registry of Registries; the M namespace for the CCR application
VERA	Veterans Equitable Resource Allocation
VHA	Veterans Health Administration
VISN	Veterans Integrated Service Networks
VistA	Veterans Health Information System and Technology Architecture
XML	Extensible Mark-up Language

Definitions

Term	Description
Extract Data Definition	This is a set of file and field numbers that identify the data that should be extracted during the extraction process.
Extract Process	This process is run after the update process. This function goes through patients on the local ICR and, depending on their status, extracts all available data for the patient since the last extract was run. This process also updates any demographic data held in the local ICR for all existing patients who have changed since the last extract. The extract transmits any collected data for the patient to the HIV Registry via HL7.
Kernel	The VistA software that enables VistA applications to coexist in a standard operating system independent computing environment.
Local Registry	The local file of patients that have either passed the selection rules and been added automatically to the registry, or have been added manually by a designated Coordinator.
Local Registry Update	This process adds new patients (that have had data entered since the last update was run and pass the selection rules) to the local registry.
National Case Registry	All sites running the CCR software transmit their data to the central database for the registry.
Selection Rules	A predefined set of rules that defines a registry patient.